

# ARMED FORCES

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# MANAGEMENT



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## Feature

*Ordinance Plus—*

*By Admiral  
Frederic Withington*

## Departments

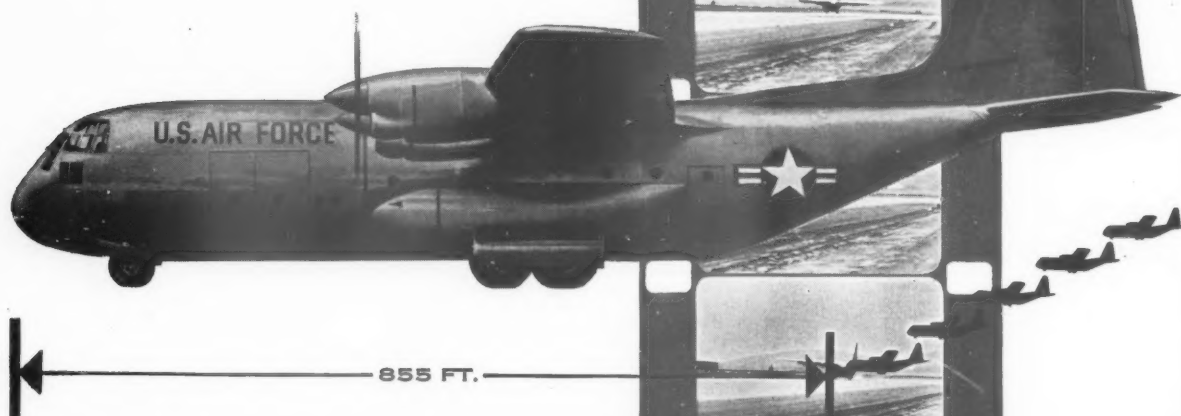
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- *News Briefs from the Services*
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## On The Cover

Holder of the Legion of Merit among other medals, Admiral Withington became Chief of the Bureau of Ordnance in December, 1964, for a planned four-year tenure after a distinguished war and peace record of service with the Navy.

**Vol. 1, No. 11 August, 1955**  
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# ARMED FORCES MANAGEMENT

Volume I

AUGUST, 1955

Number 11

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ARMED FORCES MANAGEMENT is published monthly by the Professional Services Publishing Company, Roy B. Southworth, President, Publication office 404 N. Wesley Ave., Mount Morris, Ill. Editorial and Business Office, 208 South Second Street, Rockford, Illinois. Accepted as controlled circulation publication at Mount Morris, Illinois. Subscription Rate: \$3.50 annually. Copyright 1955 by the Professional Services Publishing Company. Title registered, U.S. Patent Office. Six weeks notice before next publication date required for change of address.

AUGUST, 1955

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to illustrate as specifically as possible, just how BuOrd puts these principles to work.

### **Describes Work**

First, however, I'll round out the picture by describing some of the work done by the Naval Ordnance Establishment. In addition to current procurement, the Bureau is expending large sums of money in research and development. The Naval Ordnance Laboratory has developed an entire family of new magnetic material which uses little or no nickel. We are working to develop longer shelf-life batteries for torpedoes, and to find other power sources than batteries where we can. The Applied Physics Laboratory is a leader

## **ORDNANCE PLUS**\_\_\_\_\_

by Rear Admiral Frederic S. Withington  
Chief of the Bureau of Ordnance  
United States Navy

THE NAVAL Ordnance Establishment is an ammunition depot spreading over 318 square miles of the Nevada desert. It is also a major gun manufacturing plant on the Anacostia River in Washington, D. C.; and a tidewater terminal just off San Francisco Bay, funneling ammunition to the Pacific; a degaussing station in Pearl Harbor; a world-renowned laboratory in Silver Spring, Maryland; an ordnance inspection office in Minneapolis; a net depot at Melville, Rhode Island; a number of overseas activities, and a central office in the Main Navy Building, Washington, D. C. These are just part of the 80 odd installations, with a total plant account in excess of 1½ billion dollars<sup>1</sup> and a material inventory of 3½ billion dollars, necessary to produce ordnance and ammunition for the ships and planes of the fleet.

Thus it can be seen that to produce these weapons, management must be concerned with a field establishment which compares, in physical dispersion, variety of product, and volume of total output, with the giants of American industry. So the Naval Ordnance Establishment (which consists of a central executive office—the Bureau of Ordnance—and the many field stations) is concerned with Ordnance Plus—Ordnance Plus Management. This article is about BuOrd (Navy contraction of Bureau of Ordnance) and how it manages its sprawling field establishment.

In writing an article of this kind, there is the easy temptation to quote some basic principles of management, add some descriptive material, and let it go at that. This is a temptation well worth avoiding, however, for the principles (span of control, delegation, decentralization and the rest) are already available to all, and undoubtedly all too familiar to the audience for which this article is written. Instead, I shall try

<sup>1</sup>Based on acquisition costs

in the field of guided missiles and is the developer of a successful ramjet engine. The Naval Ordnance Test Station at China Lake, California, is accomplishing progressive and effective work in the field of rockets, propellants, and guided missiles. We are attempting to reduce the number of costly guided missile test shots by the use of flight simulators.

The question of what kinds of weapons we should have can never be completely solved. Since the decision to use nuclear weapons in war must be political we cannot abandon the so-called conventional weapons. Furthermore, weapons economy must be considered. It is much cheaper to knock out an enemy tank with one shot from a Bazooka than with a 20KT atomic bomb. There are many conflicting demands for weapon development, and judgment must be used in the division of effort within available funds. Then, of course, weapons are not truly useful unless they are designed into weapons systems.

To control effectively the Naval Ordnance Establishment, the Bureau of Ordnance emphasizes two important management areas: (1) techniques of organization, systems of operations and the other mechanistic tools which provide the framework for the control, and (2) the development of the individual human beings who collectively are the organization. In the limited space available to me I can only discuss a few examples of these two areas.

### **Systems and Organization**

The organization of the Naval Ordnance Establishment provides for the granting of maximum authority and responsibility to the Commanding Officer of a shore establishment, with minimum control exercised by the Bureau of Ordnance; in other words, a decentralized management concept. The commanding

(Continued on page 35)



# What Makes Mercury Run

by Ed Ludwig, President,  
Florists' Telegraph Delivery Association

IN DALLAS one day last month an airline hostess telegraphed a dozen red roses for her mother's birthday party in Portsmouth, New Hampshire. . . .

On the same day, in Baltimore, a doctor wired a potted plant to Kansas City for a colleague who'd just opened a new clinic. . . .

In Tokyo, a GI cabled flowers to his wife in Birmingham, Alabama, to mark their first wedding anniversary. . . .

These are only a few typical examples of the flower orders handled every day through the Florists' Telegraph Delivery Association and their international organization known as Interflora. In the last fiscal year alone, more than five million orders were handled in a volume of business amounting to just over 42 million dollars.

Special research done for FTD indicates that the association can expect to reach a volume of 100-million dollars a year.

The management process that oversees the sending of flowers throughout the world has been evolving since 1909 when the Florists' Telegraph Delivery Association was established. Today the association has 10,000 members in the United States and Canada. Interflora has 18,000 members in 88 countries.

The sending of flowers from one town to another began as a friendly interchange of business between florists who usually knew each other personally as members of the Society of American Florists. This was the "parent" organization of FTD. In 1910 FTD unanimously

approved a trade arrangement whereby business between distant towns could be exchanged with assurance of quality and credit. The official name, Florists' Telegraph Delivery Association, was adopted at that time.

Two years later a resolution was passed allowing a 20 per cent discount between members. It was decided that the customer should pay telegraph and long delivery charges. And it was agreed that no limit should be placed on the amount of an order.

The growth of FTD has in-

creased steadily since that time. It adopted the famous slogan "Say It With Flowers," in 1919.

Meanwhile, the florists within FTD fanned out into numerous committees to administer the affairs. These include a board of directors, an executive committee, and committees on membership, member service, sales and advertising, customer relations, Interflora, finance, news, and headquarters.

This is what happens when flowers are telegraphed:

The florist takes the name and

The 10,000 members of the Florists' Telegraph Delivery Association recall many instances in which they have been of special service to members of the armed forces.

During the war the florists sped numerous bouquets and corsages to the sweethearts and families of GIs, sailors, airmen, Marines, Coast Guardsmen, Seabees, and the women's services.

An FTD florist in Windber, Pennsylvania, walked in with a dozen roses from a GI just as the soldier's family was hearing a recording of his voice by shortwave. The soldier was saying, "I hope you received your roses, Mom . . ."

FTD florists voluntarily gave priority to servicemen's orders when flowers were in short supply and gasoline was rationed for deliveries. At Easter, 1944, in Lake Worth, Florida, two customers used their own cars and gas rations to deliver servicemen's orders.

In Des Moines, Iowa, in the spring of 1945, a serviceman's bride telegraphed flowers to her own wedding. She called on her local florist several days before she was to be married in New Mexico. Together they planned bouquets and altar decorations and the FTD florist ordered the flowers so that they would be reserved in New Mexico during the rush of the Mother's Day weekend on which the wedding fell.

In Norfolk, Virginia, an FTD shop received a cablegram from a British mother whose son had been killed a year before when his ship was torpedoed off the Eastern U. S. coastline. The body of the British seaman had been buried in a national cemetery near Norfolk. The florist and a YMCA director located the grave, decorated it, and then photographed it for the British war mother.

Several men stationed in India, New Guinea, and Africa, wanted seeds to plant on the graves of their buddies. This movement later resulted in FTD supplying seeds to the U. S. Graves Registration Corps for beautifying the cemeteries of Allied war dead all over the world.

Many a serviceman got in touch with his FTD florist back home. A boy on a submarine wrote for seeds to send to his mother. Another on a patrol ship wanted seeds so that he could raise flowers on deck. From the Pacific came a letter from a man who said he was "sick and tired of looking at yellow and blue flowers so I'd like to have some seed for some kind of red flowers to relieve the monotony."

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address of the person who will receive the flowers. (Many FTD florists keep a list of birthdays and anniversaries so they can remind customers of dates that should be remembered.)

The second step is for the florist to check his FTD directory to pick out a member florist in the town to which the flowers are going. If the flowers are going abroad, he can check his Interflora directory to see what flowers are available in another country at that time of the year.

Supposing, for instance, you want to send roses by wire to someone in Calcutta, India. Your local florist can tell you that roses generally are available throughout the year in India, except during May and June. During those two months, India has no roses, but plenty of carnations, sweet peas, gladioli and the lotus.

The third step involves the delivery details of the order and on this important detail FTD officials are constantly at work to maintain high quality service. The message that accompanies the flowers is carefully taken down for telegraphing with the order.

At this point, the florist on the other end of the line steps into the picture. He fills the order as quickly as possible and uses good taste and materials in so doing. He delivers the flowers on the day specified in the telegram. If there is any difficulty in locating the person or the address, he again gets in touch with the florist who sent the order.

The flower orders are usually transmitted by straight wire, day or night letters, by telephone or by mail.

After the orders are transmitted, the FTD florist sends a "Report of Orders Filled" to the clearing house in Detroit. This clearing house was established to guarantee FTD members payment for all domestic and foreign orders which they fill for other FTD members. This means each FTD florist has only one bookkeeping account entry for all wire orders handled, an average of 560 a year.

Membership in FTD entitles the florists to all services rendered by the clearing house. These services include the rendering of a weekly

report of outgoing orders, a weekly report of incoming orders, and a monthly statement. If an account results in a credit balance, a check is sent to the florist at the end of the month. If the florist has sold more wire orders than he has filled, he is billed for the difference.

The clearing house operation uses the unique method of punch-hole cards—one card for every transaction. This method of accounting makes the entire headquarters operation about 95 per cent mechanical. After the information from FTD florists is key-punched into cards, the problem of balancing, sorting preparation of outgoing and incoming reports, statements and checks, moves smoothly to a conclusion by the magic of electronically controlled accounting machines.

A pivotal program in the successful growth of FTD has been its system of choosing new members. A reputable florist at the receiving end of the telegram is essential for the building of public satisfaction and confidence in this service. A complete investigation of a florist's financial records, and standing in the community, is completed before FTD membership is issued.

The year 1954 saw continued growth in the FTD ranks but more applications are turned down than admitted. The stress still is placed on quality of membership, rather than quantity.

A program known as "Operation: Test Order" was instituted in 1948. This is a process in which an FTD representative poses as a customer in sending different types of test orders. Special problems in wiring flowers are often posed in the test orders. A check-up follows on how well the member-florist dispatches the order and how efficiently it is carried out by the receiving florist.

These test orders have even centered around mock funerals to which local florists delivered wire orders. The arrangements are judged by other florists. This is a voluntary policy the association set up and operated by its members. Failure to complete the order within the prescribed and strict standards of FTD has, in some instances, resulted in expulsion from the

Association. The bonded and guaranteed service of FTD means more when these safeguards are known.

Another highlight of FTD membership is the floral design seminar first inaugurated in 1926.

The history of FTD is full of human interest. As a Michigan florist once pointed out, "Our business touches every human event every day—literally from the cradle to the grave and lots of happy times in between."

Without doubt, FTD's gentle but effective suggestion, "Say It with Flowers by Wire," is responsible for more good will—more patched up romances, more birthdays remembered, more anniversaries celebrated, more hearts gladdened—than can ever be calculated.

One of the most admirable features  
(Continued on page 34)



"Multi-colored snapdragons catch the eye of a Pittsburgh woman selecting flowers to be wired to a friend in Seattle by her local florist who is a member of the Florists' Telegraph Delivery Association. The FTD directory indicated that snapdragons were available in Seattle and so the woman chose a few other flowers that harmonized and the order was on its way, telegraph-fast. A few hours later, on the same day, an FTD florist in Seattle received the order and delivered the beautiful arrangement (see below) to the friend."



# A New Mouthpiece for Air Force Reserve . . .

## Professional Information Service Flights

ON April 1, 1954, the 2650th Air Reserve Center was activated in Chicago under the command of an able and highly perceptive Air Force officer, Col. Ford M. Monroe. Establishment of the Center put under a single unified command about 20 Air Force Reserve training units—two groups consisting of general, specialized and professional training squadrons and flights in which something over 1200 Air Reservists were participating. Yet from the beginning, a grave condition faced the new command: there were approximately 10,000 entirely inactive Air Reservists in the Chicago area who were *not* taking advantage of the training facilities offered.

At the time of its activation, the Air Reserve Center had neither facilities nor personnel for exchange of internal information between the various units—let alone a method for reaching the public and the great numbers of inactive reservists. Col. Monroe recognized at once the immediate and urgent need for a program through which the center could communicate—not only with the units under his command, but also with inactive officers and airmen, their families, and the public at large.

As Director of Personnel in the Des Plaines Air Reserve Group, and in my civilian capacity as an advertising, promotion and public relations executive, I had been for some time painfully aware of this flaw in the Air Reserve organization. For that reason, it came as no surprise when the liaison officer of the Des Plaines group contacted me with the suggestion that I take a short tour of active duty for the purpose of studying the possibilities for establishing an Information Services Flight at the Chicago Reserve Center.

The opportunities offered me were threefold: first, it gave me a chance to take a more active part in Air Reserve affairs; too, it permitted me to help overcome a problem which I had known to exist;



by Col. James R. Williams

and finally, it allowed me an opportunity to further my training in my civilian profession. For these reasons I took a leave of absence from my business organization and accepted a two-week tour of active duty during the final weeks of August.

It was obvious from the outset that the Air Force—as well as the Reserve Center—was cognizant of the glaring lack of information service, as I investigated the problem from every angle, I found everyone, at every command level, sympathetic with the Information Services idea. In other words, an Information Services Flight, if properly formed, coordinated and put on an operational basis at the Chicago Air Reserve Center, might very well serve as a pattern key-stone for other such flights.

In view of the broad scope of the program as I began to see it, the first essential move was necessarily the organization of a workable plan—an outline from which to begin. In general, we knew that the Chicago area offered almost ideal conditions for our project. We had 1) an excellent program of training for Air Reservists—with

only a fraction of the available facilities in use; 2) the cooperation of higher headquarters and assurances that we could get necessary help; 3) a fine field of outstanding newspapers, magazines and broadcasting stations willing to cooperate once such a flight was operational.

Direction for our plan became evident immediately: the objectives were clearly defined. Beginning with internal information, part of our job would be to give all Air Force personnel greater understanding and appreciation of their own importance to national defense. Every man and woman in the Air Force, both in uniform and in the reserve should be familiarized with his or her role in the overall Air Force picture. In addition, all Air Force personnel should be a source of accurate and reliable public information. Every officer and airman should be able to speak with a consistent voice on matters of air power in national defense.

Within an organization as vast as the Air Force and its Reserve components, any individual from general to airman may lose the sense of personal identity—to consider himself and his activities unimportant. Part of any internal information program should be to help combat such a trend by assisting individual servicemen to understand and appreciate our representative form of government, as well as to know the responsibilities, obligations and privileges he enjoys under that government. Although at times military discipline and training may suggest to the contrary, the value of the individual in *any* rank is high, his individual dignity paramount; it is important that each member of the service be kept aware of that factor. Under our system, and according to our fundamental beliefs, we have faith and trust in our fellow man—we have learned, during nearly two centuries of American growth and development, that military teamwork is more effective than individual effort. Yet *each* member of

the team is vital to the success of the whole. Without such basic knowledge, any serviceman is unequipped.

Still further, it must be an objective of information services to keep personnel informed of the national and international political issues which may have impact upon his life, his attitudes and his conduct both in the zone of the interior and overseas. He must have an accurate concept of soviet communism, its meaning, its self-proclaimed objectives and purposes; he should be made aware of the great contrast between the communist philosophy and the individualistic freedom of our western world.

The above objectives are, of course, part of the long-range planning for organized information services flights. Once those objectives had been determined, we could turn our attention to the more immediate requirements for Chicago and the Chicago area. Primarily, our job would be to establish regular channels of information to local targets: reserve officers and airmen in all categories, their families, potential recruits and their families, civilian employers, as well as civic, professional and religious organizations, and the general public.

There were a number of reasons for the selection of these particular targets. To begin with, the large number of inactive reservists indicated an unawareness that a well-planned program was available for them. In order to encourage officers and airmen to participate in the program, it would be necessary to *sell* the reservists—and, in turn, get them to *sell* their reservist associates. To gain dignity and prestige for the program, the individual reservist must himself be proud of his Air Force, his Reserve standing, and his participant activities. Only then can he project his pride and enthusiasm to his family and friends.

Families of military personnel—whether active or reserve—constitute a powerful influence upon the morale of the force. Where a serviceman's family, for example, is left behind, unfavorable publicity can seriously affect both the family and the man in service. Stories of spectacular accidents may make juicy

reading for the indifferent in the general public, but they are terrifying to the families of airmen. On the contrary, public knowledge that the Air Force has an unequaled safety record also makes interesting reading, and it may well serve to give the families of airmen a sense of confidence and pride, as well.

A draft-age son in any family makes the family particularly sensitive to unfavorable publicity concerning the military force. A *true* picture of military life—including the fact that the development, training and improvement of the individual are foremost in all phases of training—will go a long way toward quieting the family's fears.

Most employers, like families, are afraid of both the armed forces and their reserves. There have been instances where employers have refused to hire men who admitted affiliation with reserve units. There are, too, a great many civilians (including employers of importance) who believe that the United States is invulnerable to attack, that an enemy would be unable to bomb American cities, that the armed forces require entirely too much of his tax dollar, that reservists are simply men who scheme for an additional two weeks of paid vacation during the course of the working year. An immensely important function of information services should be to help dispel such antiquated ideas and to urge employers not only to hire reservists but also to give them enough time to carry out their reserve duties.

This, then, was the Chicago Plan, as it became known. Organized into a report for the commanding officer of the Chicago Air Reserve Center, the Plan became an imposing document which presented the problem and offered, at least, a part of the solution. It occurred to me, during preparation of the Plan, that the problem was so urgent that there was no time for a drawn-out training program to prepare officers and airmen for public relations work. For this reason, we instituted a unit-by-unit search for talent within our two groups of active reservists. The result was gratifying: within a few days we had located about thirty-

five Air Reserve Officers who were professional writers, newspapermen, radio-television men, industrial advertising men, publishers, advertising agency executives, and public relations experts. Some of them, I realized, would not be interested in the work, yet I believed I could safely assume that others of them—enough to make a start—would cooperate. Through the various unit commanders, I issued invitations to the officers I felt best qualified to carry out the Chicago Plan to a special meeting at which they would be introduced to the project.

Twenty-two out of the total—over 62%—reported to the initial meeting, a number far greater than I had expected. Colonel Monroe, who was as interested in putting the Plan into operation as I, briefed the new flight on our problems, our intent, and the proposed mission of the flight. Each point was received enthusiastically, since it was obvious that the Plan was broad enough in scope to include every phase of the public relations profession.

Since my rank and years of both civilian and military experience, in Colonel Monroe's opinion, qualified me to command the newly-formed flight, I began at once to fill the table of organization with suitable personnel. In any other  
(Continued on page 34)

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### New Color Radar System Distinguishes Heights

A new color radar system, capable of distinguishing between friendly and enemy aircraft, is now undergoing evaluation tests by the military services.

The color radar can now indicate the position of unidentified aircraft in two colors (depending upon flight altitude), over earth surfaces which appear in another color.

The radar indicates aircraft as bright orange dots traveling over chartreuse colored land areas.

Planes flying at high levels over the chartreuse land areas are indicated in bright orange while those flying at lower altitudes show up with a more greenish hue. Current radars now in operation, indicate aircraft only as colorless "blips" at any altitude.



# Job Engineering—Design and Re-Design of Jobs for Better Manpower Utilization



By Dr. George H. Hieronymus

DURING periods of manpower shortage, industry, business, and government have made wholesale and striking deviations from usual ways of getting work done so that persons with little skill and experience can be employed profitably. In the main, these changes in the nature of jobs are to make it practicable to employ reserve manpower, such as housewives, youth, the physically handicapped, and older persons.

Little information is recorded in existing literature to provide managements with guidance on methods for making such job changes effectively. Changes have generally been made by haphazard means, by evolution, and probably ineffectively and expensively. Comprehensive search for data on rational means of designing and re-designing jobs for this purpose was conducted by the writer. This article describes five case studies for the

**Destroyed in 1954:** A stack of Government surplus records reaching 90 MILES high! (120,000 filing cabinets full @ four feet per cabinet).

**To Destroy in 1955:** 300,000 cubic feet of old Government records, thus saving the United States taxpayers \$1 million in space rental fees!

This article describes a study conducted by the author in cooperation with American University of Washington, D.C., and the Department of the Army, and sets forth the findings of the study in terms of system and procedural steps for conducting job engineering.

## 1st of 2 parts

purpose of identifying principles and methods of job engineering and presents approach and method that have proved successful in the Army Establishment and which may serve as guides in job engineering.

A full report of this project is recorded in a doctoral dissertation by the author titled, *Job Engineering—A Process for Improving Manpower Utilization*, available to institutional libraries from the Graduate School Library of American University, Washington, D.C. A resume of the job engineering procedure developed through this study and subsequent Army experience has been published by the Department of the Army in Civilian Personnel Pamphlet No. 50, *Job Engineering*.

## THE PROBLEM

Deviation from usual job patterns has been the rule in practically all types of work when manpower and skills are short. The most widespread job modifications on record were during World War II. The haste with which such changes have been made and are made and the rather haphazard, rule-of-thumb or slowly evolving changes give no assurance that the best job patterns are used for economy of either manpower or skills. There is reason to believe that resulting losses are of great magnitude because excessive number of job vacancies may exist for long periods, training is costly or misdirected, morale and productivity of employees is decreased because of misfits between assigned worker and job, and quit rates are high. Hence, penetrating study was made for the purpose of capturing the experience of government, business, and industry in this feature of management. It is felt that a measure of success was achieved in distilling out successful practice and method and making them available to managements within

the Army and elsewhere. Comprehensive examination of related literature revealed that only fragmentary description of methods and procedure were in existence, and so the system of job engineering now coming into practice had to be designed mainly from direct case experience.

## PROCEDURE FOLLOWED

The study was in two phases. Phase I was the thorough examination of management literature in a search for histories of or references to guiding principles, methods, and procedures which would point the way to rational and economical job engineering.

The findings of this first phase disclosed that insufficient data were available to construct even tentative guides and procedures, although exhaustive studies were made in the principal municipal and institutional libraries of 10 large cities in Eastern United States. None of these sources supplied anything but passing and fragmentary references to ways and means, although there was adequate evidence that *widespread modification of jobs was the rule during World War II in all types of business and industry*. This was necessary in order to make it possible to utilize such manpower as was available. Also there was evidence that such job modification was common practice during the first World War, and has been practiced to a considerable extent since World War II while manpower and certain skill shortages persisted. The need for standard nomenclature on the subject was also revealed. Thus, findings of Phase I of the study indicated that it would be necessary

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through more extensive study of cases to *identify and record in the first instance the basic guides and procedural steps of job engineering*. In addition, it would be desirable to do some pioneering toward standardizing the nomenclature.

Phase II was review and analysis of actual cases. This was done by personal observation, discussion of the case histories with persons concerned, location, and study of records bearing on the cases. It also included discussion of or correspondence on the general problems of manpower utilization and job design or re-design, with special reference to use of skills, with executives, foremen, and students of industrial management techniques.

Studies were completed in eight Army installations, each engaged in basically different missions.

### NOMENCLATURE

A variety of terms are used in reference to job modification. Most common terms were *job dilution*, *job breakdown*, *job simplification*, *work simplification*, *job re-arrangement* and *job re-engineering*. An Army manpower group used the term "*shred-out*." Some of these terms have established technical meanings associated with management techniques related to but different from job engineering. The lack of one commonly accepted term descriptive of the process appeared to be a deterrent to communication about it.

The study, therefore, undertook to identify one term as the best, define it well, and set it forth in an attempt to standardize. The various terms were discussed with many practitioners and students of management, management consultants, and authors. The most appropriate name currently in use seemed to be *job re-engineering*. This term, however, implied re-arrangement of only jobs that were already in existence. The problem is concerned as well with *design of jobs in the first instance*, particularly when new work, new methods, or use of new machines is being inaugurated. And so the term *job engineering* was agreed to by many advisors as one with no undesirable connotations and one which would be acceptable, provided it were properly and fully defined. On this point,

one internationally known management consultant said that it made little difference which of several possible names were applied to this process, so long as it were "well defined and devoutly justified."

Thus the process-name, *job engineering*, was selected as the one best fitting the need.

### JOB ENGINEERING CASE REPORTS

Signal Corps Stock Control Agency, Philadelphia, Pa., Stock Management Division, August 1950

**Problem:** The mission of the Agency is to keep records of signal equipment and its location, to aid in prediction of requirements, and to procure certain equipment. An increase in demand for mutual Defense Assistance material and the need for increasing stock levels to meet needs in Korea required additional manpower not available in the labor market. There was an acute shortage of *Stock Analysts*.

**Facts Bearing on the Problem:** The agency is considered the "nerve center" of the Signal Corps supply program, concerned with procurement, control and distribution of 130,000 items of material. The Stock Analyst (GS-5) is a key man in this activity, having a combination of technical and clerical responsibilities. He must have a knowledge of a group of 1,000 to 1,500 items, make judgments, substitutions and interchanges, must know cataloging, supervise "bookkeeping" on these items, and determine appropriate stock levels. No experienced analysts were in the labor market; 100 were needed. The few persons with similar skills that were available would require months of training, and those few with basic educational background would require at least a year of training before reaching journeyman level.

**Analysis:** Data that had been collected for other management purposes over a period of three months were analyzed jointly by personnel management staff, responsible officials and supervisors in the Stock Management Division, and the general planning branch of the Agency. All related reports and data were looked into for clues to solutions to the problem. One item of information that claimed attention was that *17 per cent of the Stock Analysts' time was spent in clerical work of*

*a nature not requiring technical knowledge*. This fact led to a number of changes, the principal one being modification of the analyst job.

**Action:** Fast action was essential. All hands pitched in. The Division personnel revised work methods and developed new procedures, particularly to make it possible to concentrate technical and judgment responsibility in the analysts. This left clerical and simple administrative work to others. The planning branch advised on layout and flow of work. The administrative branch obtained new equipment. The engineering branch reviewed the new set-up to check on possible slips that might affect the quality of the technical work. The personnel branch supplied data on the manpower market, wrote qualification requirements for the various jobs, determined pay levels, training time required, and handled other personnel-management elements.

The change required establishment of a Record Analysis and Control Branch composed of 30 clerks (GS-2 and 3), a branch chief (GS-9), and an assistant (GS-6). "Tub files" at desks of the analysts were discarded and modern filing containers were located in the Records Branch, thus centralizing many sets of records. New descriptions

(Continued on page 13)

### Men and Women In Army Uniforms Pay Big Tax Bill

The U.S. Treasury received a check for approximately \$12,000,000 (M) each month of 1954 from one of its governmental cousins—the Finance Center of the U.S. Army here.

This sum represented the average monthly payment of a total of more than \$141,000,000 (M) in income taxes deducted from the payroll of Army enlisted and officer personnel during the war.

Each month the Finance Center makes an installment payment to the Federal Reserve Bank of Chicago for credit to the deposit of the Treasurer of the United States. This is applied against the total income tax payments to be withheld from uniformed Army personnel during the calendar year.



ARMED FORCES MANAGEMENT ASSOCIATION

## NEWS and ACTIVITIES

### NATIONAL HEADQUARTERS

Weldon T. Ellis, Jr., retains his post as president of the Association following the recently-held elections. The Board members elected include: Major General Lawrence R. Dewey, Army; Mr. B. Benton Bray, OSD; Colonel Harvey N. Brown, Air Force; Colonel Howard H. Cloud, Jr., Air Force; Mr. Edmund Dwyer, Navy; Mr. Carl Freedman, Army; Mr. Lawrence W. Hoelscher, Army; Mr. Tom Kouzes, Navy; Mrs. Margaret E. Moore, Navy.

Due to travel and a close schedule of commitments, Mr. Gus C. Lee and Mr. Frederick L. Harrison felt it necessary to resign from the Association.

President Ellis, following the election, has announced his executive appointments for the following year. Major General Lawrence R. Dewey has been appointed Vice President and Vice Chairman of the Board. Other appointments include:

Mr. Benton Bray, Chairman of the Awards committee; Colonel Howard H. Cloud, Jr., Chairman of the Membership committee; Edmund D. Dwyer, Program Director; Carl Freedman, Chairman of the Finance committee; Frederick L. Harrison, Chairman of the Public Relations committee, and L. W. Hoelscher, chairman of the Publications committee.

Chairman of the Committee for Constitution and By-Laws will be Mrs. Margaret E. Moore. The executive secretary is Tom Kouzes. Kenneth Borgen has been appointed Editor and Chief of the Armed Forces Management Journal with Mrs. Mary M. Mulford, editor of News and Activities; Mrs. Esther V. Campbell, recording secretary and historian, and Captain Harold Fredericksen as editor of the Armed Forces Management Packet.

### Annual Meeting Successful

The Association held a very successful annual meeting and conference at Fort Myer, Va., on 17 June. A Board of Directors meeting was held on the eve of the conference to welcome the field Chapters to the conference and offer them an opportunity to voice their opinions; offer suggestions for improvement of the Association; and help complete development of the program for the next year. During the meeting the Awards program, presently being developed, was discussed. Criteria for the program will be distributed to the chapters. The Board of Directors approved refunding one dollar of the membership fee to any Chapter recruiting an additional member and the provision of 500 letterheads and envelopes to each Chapter.

The schedule of events for the conference day, 17 June, was mailed to each member. We will, therefore, touch only on the highlights here due to a shortage of space.

The Honorable Robert B. Ander-

son, Deputy Secretary of Defense, extended his best wishes to the Association: "As you assemble here in Washington for your Annual meeting, I want to take this opportunity to greet and congratulate you on your splendid efforts and interest in the very constructive objectives to which the Armed Forces Management Association is dedicated.

"It is rewarding to see such a fine personal response on the part of employees in behalf of the overall interests of the Department of Defense. By virtue of your interests and the positions you hold, you are, as an organization, in a unique position to render a real service to the cause of national security. I personally want to commend you for your interest and efforts, and I send my very best wishes to you for the utmost success."



Mr. Weldon T. Ellis, Jr., Association president and chairman of the board of directors, discusses Association activities with the Annual Conference luncheon speaker, General E. W. Rawlings, USAF Commander of the Air Materiel Command.



Roger Lewis, Assistant Secretary of the Air Force (Materiel), delivers the evening talk at the annual conference. Seated l. to r.: Weldon T. Ellis, Jr.; Lawrence Hoelscher, Edmund Dwyer, and Colonel Howard Cloud, Jr., the latter three members of the AFMA Board of Directors.

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General E. W. Rawlings, USAF, Commander Air Materiel Command, gave the luncheon address. General Rawlings emphasized the increasing importance of being able to collect, analyze and act promptly on management data. He pointed out that the development of electronic computers may herald a new era in the field of logistics.

The Honorable Roger Lewis, assistant secretary of the Air Force, gave the dinner address. Mr. Lewis pointed out the essentiality of maintaining a large and virile military establishment in the world of today. He stressed the need to make the most of our resources, and the vital part those "dedicated to better management" can play.

We want to thank those field chapters who sent a representative and representatives who assumed the responsibility for coming to this conference. It is planned to schedule next year's annual meeting and conference to allow time for the Chapters to arrange a more widespread attendance.

## CHAPTER NEWS

### Fort Monmouth

Weldon T. Ellis, Jr., president of the Association, presented the Central New Jersey Chapter at Fort Monmouth, New Jersey, with its charter. Principle speaker of the evening, Mr. J. P. Rutherford, Management Consultant Services Division, General Electric Company, presented company views and organization extant for management research as well as progress in career development in training company managers.

### Wright Brothers

The Wright Brothers Chapter, Dayton, Ohio, has scheduled Mr. Donald R. Jackson, Deputy for Materiel Programs and Asst. to Mr. Roger Lewis, Asst. Secy-Air Force for Materiel to speak at their June meeting at the Biltmore Hotel on 7 June. His subject will be "Materiel Management at the Executive Level."

### Baltimore

The Baltimore Chapter held an interesting meeting, touring the Gunther Brewing Company as guests of that company. The June meeting will close their sessions for the summer.

### San Francisco

Slogan of the San Francisco Chapter for its membership drive, "Every Member Get a Member," is bringing fine results.

## Five Chapters Added

Five new Chapters have been approved by the Association:

#17 San Antonio Chapter, Mr. Claud C. Jones, President, 367 Altgelt Street, San Antonio, Texas.

#18 Hawaiian Chapter, Major Gerald T. Hougland, President, USARPAC, Signal Depot and Service Group (8309th Army Unit), APO 958, San Francisco, Cal.

#19 Greater Boston Chapter, James E. Sullivan, Secretary-Treasurer, A.F., Cambridge Research Center.

#20 Weisbaden Chapter, Thomas A. S. Murray, President, Headquarters, 7100 Support Wing, APO 633, New York. (This is our first Chapter in Europe).

#21 Ft. Lewis Washington State Chapter, F. Scott Kizer, President, Chief PR&A Division, Office of the Comptroller, Headquarters, Ft. Lewis, Washington.

#22 Augusta Chapter, Mr. Elmer Tuggle, President, 945 Broad Street, Augusta, Ga.

## Completes Management Program

Leonard I. Meisel, Supervisor of the Plastics Branch of the Naval Air Experimental Station, Philadelphia Naval Base, and member of the Armed Forces Management Association, has successfully completed the U.S. Civil Service Commission's Senior Management Program. Mr. Meisel was one of the 19 selected by a rigorous screening process from Federal agencies all over the country, to participate the program.

## Job Engineering

(Continued from page 11)

were prepared for the analyst jobs. New review procedure provided for classification of procurement "cases," so that the more important cases would be reviewed by the analysts—routine cases by clerks. The clerical group made routine entries in the record, prepared simple

correspondence, posted, filed, and did simple administrative work. Standard paragraphs, letters, and report forms were designed for and used by this group. Thus the analyst was free to devote his time to technical questions, study trends in item demands, set stock levels, advise his superiors on his group of items, and maintain liaison with the clerical supervisor on his items.

**Results:** No new stock analysts were needed after job engineering. Some additional clerks were hired for simple clerical jobs. Training was relatively brief and given mainly on the job. Changes initiated in addition to the specific job changes, such as limitations on classes of cases reviewed by section and branch chiefs, resulted in increased productivity and better utilization of their time.

Engineer Research and Development Laboratories, Climatic Testing Laboratory, Ft. Belvoir, Va., 1952-53

**Problem:** The Climatic Testing Laboratory tests Army equipment, machinery, and materials under a variety of simulated climatic con-



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ditions. A backlog of work existed, with many types of equipment needing testing. The Laboratory had experienced a good deal of difficulty in keeping its jobs filled since there were no experienced operators available in the labor market area. The Chief of the Environmental Testing Branch recognized that the problem was one which might well be resolved by a job engineering study. Unfortunately, manpower was not available to plan and get a study under way. He requested, therefore, that his operation be used for a pilot study of job engineering methods.

*Facts bearing on the problem:* The laboratory was under the direct supervision of a Chief Engineer, who had one clerical assistant. It was composed of an Operating Section and a Testing Section. The former was headed by a chief, three senior operators, and three assistant operators as subordinates. There was a vacancy for a trainee operator. The latter Section was headed by a Testing Engineer with one Electrician and one General Mechanic as subordinates. There were vacancies for two Engineering Aides.

The contractor that built the test chambers and installed the machinery had declined to contract to operate the laboratory because of its complicity, difficulty to get and hold competent operators, and hazards involved. ERDL was considering constructing an extension to the laboratory, at a cost of more than a million dollars. It was thought that with the extension it would be possible to expedite tests so as to reduce the work backlog and keep current on workload. Funds were not immediately available. Another alternative under consideration was to farm out tests of individual items by contract to other Federal or private testing laboratories.

Records showed that actual tests were under way only about 40% of the time. The remainder of the time was required to ready items for test and for overhauling and adapting the test machinery for the tests. When tests were under way, the chambers were operated around the clock if necessary, thus requiring night work by some of the personnel. Morale within the group had dropped off, because of backlog,

more work than the group could handle well, and recent change in title of the personnel from Operating Engineers to Mechanics, Electricians, etc. Pay was considered low, since the personnel felt that they were actually doing engineering work. Opportunities for promotion in the laboratory were almost zero.

*Analysis:* The laboratory secured the assistance of two staff advisors from a higher command to assist as "consultants" in collecting the facts and in analysis of the facts. These advisors took the lead; but in a staff capacity. The laboratory staff maintained full authority and responsibility throughout the entire study. There were indications that the flow of work would increase, but no assurance. Construction money was not immediately available. It was decided, therefore, that the solution lay in management and operational improvements and not in extension or outside contracts.

A careful study and analysis was made of every phase of and step in setting up and running tests of various types and difficulty in a wide range of simulated environmental conditions. Equipment for test varied from such items as small motors or compressors to motorized field laboratories. Tests simulated weather conditions ranging from tropical to sub-arctic temperatures and humidities, and at varying altitudes up to stratosphere.

The laboratory machinery consist of commercial types of compressors assembled into three separate units, could be operated separately or concurrently, and pumps, all of which were interconnected by a fabrication of pipes and controlled by a series of valves. Test data were obtained by an elaborate system of recording devices connected by thermocouples to equipment under test, by direct observation and by other methods and analysis. All equipment, insu-

## William J. Long Named Federal Employee of the Year

William J. Long, a member of the management staff in the South Pacific Division of the Army's Corps of Engineers has been named "Federal Employee of the Year" by the San Francisco Federal Business Association. The award is made to the employee whose personal contribution to the Federal service meets the exacting factors of evaluation and appraisal established by the FBA. Nominations are invited annually from all Federal agencies in the nine San Francisco Bay Area Counties, comprising about 100,000 employees. Mr. Long's nomination this year was submitted by Colonel William F. Cassidy, Division Engineer, South Pacific Division, Corps of Engineers.

In addition to meeting the FBA's requirements of demonstrated leadership, cooperation, and performance of duty, the honor recognizes Mr. Long's contribution and performance of an unusual and distinctive character. Through his initiative and tenacity he developed the first general system of performance analysis that the South Pacific Division of the Corps of Engineers could apply successfully to the diversified manpower requirements in the engineering, operations, and administrative fields of the four major South Pacific Division offices.

The citation, accompanying the award, said in part: "As a result of that development, the Corps of Engineers now has a more realistic basis on which to determine manpower requirements. Mr. Long's performance was outstanding as an incentive to others, on the leadership he has demonstrated, and there is a great deal of evidence of complete cooperation and some financial savings."

Long, meeting the rigid personnel evaluation requirements, was given a probational appointment with the Army Engineers on September 29, 1952. Throughout his short career as a Federal employee, he has demonstrated outstanding ability in meeting and solving the variety of management problems which confront a widely dispersed, technical organization.



lation on pipes, valves and compressors, had to be maintained constantly in perfect operating condition, all instruments and instrument panels must be calibrated to 100% accuracy.

The study showed that the positions called for people with ability to understand principles of operating multiple sets of refrigeration machinery which are phased into parallel and series operation which may be far above the rated capacity for reducing temperature, attaining altitude (vacuum) or any combination thereof.

An operator had to know how to "cut" into or out of the operation any compressor or compressors without damage to machinery, danger to personnel or interruption of a test in a testing chamber. He had to know how to make any and all types of repairs to machinery, pipe, insulation, valves, pumps and related mechanisms of the laboratory under emergency, normal operation or during shut-down conditions. An operator should be alert to recognize normal operating sounds and immediately spot unusual sounds, locate the cause, and if necessary, take corrective action within a matter of seconds. Safety of technicians in the test chamber was the responsibility of the operator—carbon monoxide, freezing, and "bends" are some of the hazards. Although automatic controls, alarms, and safety devices were maintained in top repair and adjustment they were not absolute; some tests were beyond the capacity of these instruments.

Mechanical ability and experience, cool headedness during emergencies, resourcefulness, ability to learn quickly and hold in mind a "blueprint" of circulation of coolants and all laboratory mechanisms, and to spot trouble and make correct adjustments quickly were determined to be the basic qualifications for operators.

Interest in and appeal of this particular kind of work and high motivation toward devotion to duty were an essential. A number of occupations other than refrigeration mechanic offered sufficient experiences for the assistant and trainee jobs. Occupations thus identified were:

**a. Fireman—submarine**

- b. Flight engineer—stratosphere**
- c. Compressor operator—gas field**
- d. Mechanic—auto, electrical plant (need not be journeyman)**

Operational and even administrative work was liberally mixed in with engineering and planning work in practically all the positions. A possible division of work was dividing it into two kinds: (1) Mechanical and operational aspects of preparing and running the tests, and (2) Planning each test and maintenance of the laboratory from an engineering standpoint, interpreting data and drawing engineering conclusions and describing operational characteristics under varied climatic and atmospheric conditions. A good deal of administrative work, some at a relatively low level, was interspersed among the positions. It appeared that there was under utilization of engineering skills and also high mechanical skills because of these "mixtures" of duties. Because of the many work pressures, the group had not been able to record and document many important engineering and technical data that would have great value to both equipment designers and users.

It was determined that persons with required abilities and basic mechanical skill could be trained as assistant operators in about six months, journeymen operators would require another year. A journeyman refrigeration or air condition mechanic would require about the same amount and kind of training as other recruiting sources. This was a reduction of about 2½ to 3 years in training time. The clerical assistant to the Chief of the Laboratory was capable of handling simple and intermediate administrative matters.

**Action:** The analysis pointed to reorganization of the laboratory, establishing two distinct types of work and responsibility for two groups. An implementing proposal was drawn up and studied in detail by the personnel concerned. Some alternative proposals were likewise studied and discarded. All test operations, mechanical tasks, and administrative matters were concentrated in an Operations Section. Planning and engineering were concentrated in the Planning Section. The personnel themselves con-

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tributed many good suggestions, which, with mutual evaluation of their own abilities and interests, resulted in an organization and assignment pattern that was satisfactory to the majority. The simpler administrative duties were assigned to the clerical employee. The remaining more difficult ones were assigned directly to the functions and positions to which they were nearest related. *No additional personnel were employed, and the vacant engineer aid positions were canceled.*

The whole study and recommendations were approved by superior officers concerned. Other organizations of the Research Center assumed their respective responsibilities in effecting the changes: The Post Engineer readied the new physical facilities needed; the personnel office went to work on new job sheets and classification work, handled reassignment papers, and like tasks; and planning and management staff took care of overall changes and coordination.

**Results:** In three months the backlog of work had been cleared up. This was in part due to the job modification and partly because receipt of new test work had not materialized. Some of the personnel that had not readily accepted the changes agreed to by the majority had made the adjustment, and were well integrated in the new set up. Work performance and attitude of all seemed to be improved. Some desirable work that could not be done before—mainly recording a great deal of related test data for use elsewhere—was now being undertaken.

In six months, no backlog was accumulating, although work orders had begun to increase again. The active test time had been increased from two days a week (40%) to five days a week (near 100%) by better scheduling and readying everything in advance.

After a year, the estimated savings and value of increased production was reported as \$165,000. Not all of these gains were directly the result of job engineering alone. As the studies and analysis went forward, many needed improvements of scheduling, work flow, and use of equipment were observed. Improvements were made when the jobs and assignments were changed. This study became equivalent to almost a full-scale management improvement study before its completion.

Gains reported for the first year persisted through recent months, and at the time of this writing, the Laboratory, with approval of the Office of the Chief of Engineers, has engaged in a more comprehensive job engineering project in preparation for a challenging expansion of another of its important missions.

#### **IDENTIFICATION AND VALIDATION OF GUIDES AND PROCEDURAL STEPS**

Based on data collected in the case studies, as summarized above, basic guides or principles for observation in engineering jobs were tentatively delineated. At the same time, a set of more precise steps in method or procedure were identified. The many fragmentary published references to job engineering were utilized in structuring these guides and steps. This element of

the study was cumulative, growing as the cases were analyzed. Opportunity was presented, therefore, to get opinion and advice on these guides and steps from many management specialists, operating officials and supervisors, and students of management processes.

The tentative statements were reproduced by the Department of the Army and distributed for current use and evaluation to about 300 of its installations employing civilians. After six months, about 50 of these were asked to comment on the logic and utility of the proposed guides and steps. An additional comprehensive job engineering study was conducted, based on guides and steps advocated, and shortcomings were noted. These field comments and experience in the new case were used as a basis for revision of the statements. The set of guides and steps were finally revised, based on this validation.

#### **BASIC GUIDES IN JOB ENGINEERING**

When there is a dearth of needed skills, there is probably no choice except to engineer the jobs. This may result in either higher or lower production costs. Increased costs may be the result of capital outlays for tools, equipment and space, increased training, or cost of turnover in large employment. Costs can be lower when job engineering provides better operating methods, use of machines, or increase in value or quality of output.

Comprehensive analysis of both the labor market—the skill power that is available—and the requirements of the job is essential. Skill needs and resources within the organization and probable outside resources must become complementary sources of data for use in decision and planning.

Greatest gains come through (1) shorter, more specific training required in jobs requiring narrower

range of skills and (2) movement from manual to machine operations, and particularly to automatic and semi-automatic machines.

Greatest gains seem to result when design of new jobs and redesign of existing jobs is not hampered and restrained by undue adherence to traditional and "normal" methods.

Changes in jobs through job engineering usually require modification of many management practices such as recruiting and training, services to employees, and the character of supervision.

Management designation of one responsible person to administer or coordinate job engineering in a given organization, with full cooperation by all persons, offices, or staff that can make contributions, seems to be the most promising pattern.

Democratic approach, with full information to all concerned about the reason for and gains expected, seems to be essential for successful job engineering.

The principle of fair pay for actual work done should be applied, rather than "bonus" rates because of labor or skill shortage.

A governing principle is that job patterns should be such that the highest skill of each employee shall be used to the greatest practicable extent.

#### **PROCEDURAL STEPS**

1. *Study existing jobs to get general patterns for each.*

The jobs as they exist form the starting point. Ways of doing, equipment used, work habits, traditions, training required should be noted and analyzed. Details as to why present arrangement obtains should be determined.

2. *Chart the work process and work flow.*

If the data described above are charted as for work simplification or methods engineering, the charts will provide working instruments

#### **ARMY COMES TO HOUSEWIFE'S RESCUE**

FORT DIX, N. J.—Army cooks at Fort Dix have renewed cause to be proud of their culinary prowess. A local housewife telephoned the post food service with this plea:

"My husband keeps complaining that my coleslaw isn't as good as the kind he used to get in the Army. Could I get the recipe?"

The Army complied.

for better job engineering. Possible simplifications, eliminations, and combination of operations should be noted in this step.

**3. Group operations by types into natural, major divisions.**

Main divisions may be such as planning, draft or roughing-out operations, fine or finish work, inspection, or review. Objective, observational analysis should be employed in this step, and breaking away from tradition offers possibility of much gain.

**4. Identify repetitive operations and tasks.**

Such tasks or operations offer greatest promise for job engineering. They lend themselves to fine division of work and short and precise training.

**5. Class operations, tasks, and duties, by skill level.**

Skill-level groupings such as engineering, highly-skilled and technical, machine operation, and labor will lead to possible improved job designs. Another grouping might be administrative, adjudicating, secretarial and stenographic, typing, filing.

**6. Plot tentative job arrangements.**

Counsel and advice of all competent persons should be used. The arrangement selected should be the most logical design based on grouping of tasks *requiring same skills or abilities at the same skill level*. Arrangement must be determined in light of all data collected and analyzed, taking into account repetitiveness, machines available, etc. Plot various alternatives for further consideration.

Clues to job patterns that promise better skill utilization:

Can use of automatic or semi-automatic machines reduce skill requirements?

Can modification of machines and tools reduce requirements for physical strength and stamina?

Can heavy lifting, pulling, and pushing in a number of jobs be concentrated in one, making it possible to employ women, older men, or physically handicapped persons in the jobs from which these tasks have been removed?

Can employee service and comfort facilities be added, such as ladies' wash rooms, toilets, and rest

rooms, to make it feasible to employ and utilize women?

Would employment of a matron and some special supervisory training make it possible to employ girls?

Would a few ramps, hand rails, and like devices make it possible to employ blind and crippled persons?

Can jigs and fixtures be incorporated in production methods so as to make work easier and safer and to improve quality?

Can manual clerical work be done faster and better by use of bookkeeping machines?

Can standard letters, paragraphs, and even sentences be used to permit use of lower level clerks?

Can simply providing helpers to experienced, skilled workers to relieve them of easier, routine tasks permit better utilization of their higher skills?

Can use of simpler gauges or automatic gauges permit use of less skilled employees?

**7. Evaluate and choose best job patterns.**

Use advice of all concerned. Get majority approval, if possible of all

concerned. Choose most promising of alternative arrangements.

**8. Pilot test the chosen job patterns.**

Sell the users well. Test under normal conditions, in as limited a scope as will give an objective test. Keep all informed on progress.

**9. Make necessary changes and install.**

Prepare all employees well to feel at home in the new set up, to use the new methods, machines, etc. Seek democratic support. Stress positive values. Give needed training. Keep an eye on the situation.

**RELATIONSHIP TO OTHER MANAGEMENT PROCESSES**

Job engineering uses many of the established processes of industrial engineering or management studies. Job analysis is an essential process. Study of workflow and methods, and charting of workflow and layout can be used as a principal part of job engineering. Time study likewise has its functions when applicable. Usual activities of personnel administration come into play, but ordinarily with some modification from the normal, such as simplify-

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ing and narrowing training. Usual features of work simplification also are used in practically all job engineering studies.

Since many of the features of general management improvement studies are present in job engineering, the question naturally is raised as to precisely how does job engineering differ from work simplification or work improvement studies. The principal difference is that job engineering is concerned with changing the design of jobs and the ways of doing work so that better use of manpower and skills can be utilized. It does not aim particularly for lower costs, although this is desirable and economy is considered in job engineering changes. It takes into consideration the availability and utilization of workers and skills as a major factor. It therefore concerns itself mainly with the people more than with machines, equipment, materials, and costs. As a collateral result, however, job engineering often brings noteworthy gains in economy and quality of product.

#### CURRENT STATUS IN THE DEPARTMENT OF THE ARMY

The Department issued a guide to job engineering in the form of a Civilian Personnel Pamphlet in a special series issued for use during the expansion due to action in Korea. During the following two years, numerous instances of successful job engineering practices were observed, particularly in support-type activities such as arsenals and depots. Promotion of this activity, when its need was indicated for improving civilian manpower utilization, became an expressed objective of the Civilian Personnel Program of the Department in 1952.

Based on experience since publication of the first pamphlet, a revision was prepared and published in 1954. Even though no direction has been issued by the Department of the Army requiring mandatory application of job engineering techniques, as this management device has come to the attention of staff and operating officials, it has attracted attention as another means of improving management and decreasing costs. The Army Secretariat has initiated special study of job engineering, with a view to its wider use throughout the Army

Establishment. The Deputy Chief of Staff for Logistics has also directed more detailed attention to its use within the logistical structure. Job engineering has been entered as a specific objective for emphasis during next Fiscal Year in the Army's Primary Program System.

Although the author does not wish to characterize job engineering as a panacea for most management ills, he does predict that it is becoming one of the prominent, practical means of substituting the use of facts and seasoned judgment for fumbling, trial-and-error methods in working operational problems in our organizational units, when such problems include matters of manpower utilization.

**EDITOR'S Note** — Next month we will bring you Part II of Dr. Hieronymus feature.



Headquarters Sixth Army, San Francisco, California. The Sixth Army Quartermaster, Colonel Louis G. Bumen, disclosed recently that the accelerated program of reclamation is being continued at peak rates. 704,556 major pieces of government property were restored to usefulness and service during the past year. In the first ten months of Fiscal Year 1955, property having an acquisition cost of over \$5 million was donated to organizations such as public schools, Boy and Girl Scout organizations, etc. Approximately \$5 million were transferred or returned to use, without reimbursement, and over \$91 million acquisition cost was sold at public auction for over \$9 million.

Army Finance Center, Indianapolis, Indiana. A stepped-up mailing schedule in which all allotments will be mailed on the last working day of each month, has resulted from a management survey. Under the old mailing schedule, Class Q allotments to dependents were mailed on the second working day

of each month after they were due. Class E allotments were mailed not later than the fourth working day. Specialized business machines are largely responsible for the speedier service.

Norfolk Naval Base, Virginia. A tremendous step in the conservation of time and money was made recently, when Nils A. Dorsch, a chief aviation metalsmith, designed a new method of carrying out an aircraft change on the aileron trimtab of the S2F Sentinel. The change, which formerly required more than 20 hours of work and involved three different departments, can now be completed in 15 minutes by just one man. In commending Chief Dorsch, Commander W. E. Rouse lauded him for his "high degree of zeal, initiative and outstanding devotion to duty."

United States Army. During 1954 more than 212,000 weapons valued at about 120 million dollars, were rebuilt by the Army. The cost of rebuilding was \$349,000. Weapons included 144,000 automatic weapons ranging from small arms to heavy tank armament.

Wright-Patterson Air Force Base, Ohio. "Conservation is everybody's business," is the motto behind the Air Force's world-wide program directed at saving manpower, money and materials. The Air Materiel Command which is composed of nine Air Materiel Areas and seven Air Force Depots, is working closely with the 13,000 Air Force prime contractors to conserve wherever possible in production costs. One engine manufacturer in the first two months of his joint conservation program saved \$179,000. Another savings is in making maximum use of property declared excess by other Government agencies. During the nine months ended March 31, 1955, the Air Force obtained more than \$47 million worth of excess property which has been restored to use.

Fort Sill, Oklahoma. A commercial taxi service to shuttle military and civilian personnel on official business, has been employed to replace military vehicles. Lt. Col. James W. Hobbs, post transportation officer, reports the new setup is saving the government approxi-



mately \$1000 per month. It will also reduce the post's fleet of cars by 10 sedans and 15 half-ton trucks.

**Amarillo Air Force Base** (3320th Technical Training Wing). The conservation of our most valuable asset, manpower, was in the mind of Master Sergeant Herman Schoenstein, a Management Technician in

the Manpower and Organization Office. A Manpower Manning Guide, which is an excellent self-explanatory chart, is available to interested personnel by writing to Sergeant Schoenstein, Amarillo Air Force Base, Texas. (Note: We regret that space limitations preclude a reproduction of this chart for your information.)

## What's NEW in Suggestions?

**Lycoming Division, Avco Manufacturing Corporation.** Checks amounting to \$1,333.96 were awarded to 45 Lycoming employees, bringing to \$20,902.41 the amount paid out since the program first went into effect about 18 months ago. Top honors went to Mr. Kenneth Simpson, who collected the tidy sum of \$485.94.

**Fort Sheridan, Illinois.** Twelve civilian employees were recently honored with cash awards for outstanding suggestions and improved methods which will result in savings to the government totaling \$11,513.

**USAFE Headquarters, Wiesbaden, Germany.** United States Air Forces Europe will save more than a half million dollars this year through the suggestions award program. USAFE awards cash to military personnel. Officials said that \$2,177 was awarded for 277 of the 605 suggestions for money-saving improvements that were turned in last year. The annual savings will be approximately \$508,000.

**Headquarters Fourth Army, Fort Sam Houston, Texas.** A plan is under consideration whereby military personnel throughout the Fourth Army area would compete for three cash prizes monthly in support of the Army's incentive awards program. The installations within Fourth Army, Fort Sill, Okla., and Camp Chaffee, Ark., already having programs to pay military personnel cash awards for

their money and time-saving suggestions, may forward their winners to the Army Special Committee for consideration in the Army awards. The committee will be responsible to determine the recipients of the \$100, \$50, and \$25 cash awards.

**Travis Air Force Base, California.** First cash award at Travis under the new SAC incentive system for military personnel was a \$25 check to T/Sgt. Trellis R. Massie of the Field Maintenance Squadron. Sergeant Massie's suggestion had to do with the "ground swinging" of an aircraft compass.

**White Sands Proving Ground, New Mexico.** Mr. Archie C. Cody picked \$45 from the suggestion kitty for his idea to use ammonium hydroxide instead of sodium hydroxide in the processing of linagraph survey film. First year savings of \$364.98 in addition to the intangible benefits of increased safety, improved quality and equipment savings, were reported.

**Puget Sound Naval Shipyard, Washington.** Reclamation of excess ladder treads by replacing the worn out and missing nonskid abrasives with an approved nonskid, water-proof compound, was suggested recently by Mr. W. B. Park, Jr.

**Andersen Air Force Base, Guam.** Eleven Andersen AFB airmen recently received \$100 in awards ranging from five dollars to \$25 for money-saving ideas.

**Edwards Air Force Base, California.** First prize award was presented recently to Machinist Erwin Card for his contribution in the suggestion program. A check for \$155, was presented by Colonel Robert Caldwell to Mr. Card.

**Pratt & Whitney Aircraft Corporation.** Mr. George B. Murphy won first place and \$1,855 in last month's suggestion program. Second place and \$261 went to Kenneth Frechette, and third prize money, \$260, was awarded to Mr. Winston DeMerchant. During the month 227 employees divided \$8,189 in suggestion awards.

**Fort Sill, Oklahoma.** Savings for the federal government last year from Fort Sill's incentive awards program amounted to \$165,000. Cash prizes were initiated last September for military personnel when Major General Edward T. Williams, commanding general of the Artillery and Guided Missile Center, appropriated funds from the Central Post Fund for this purpose.

**McClellan Air Force Base, California.** The report covering the third quarter FY 1955, shows an over-all savings of \$894,314.38 from the suggestion program. Last quarter, \$277,703.30 was reported. Highest winner received a total of \$415 with five others who have received over \$300 and 17 more have taken home over \$200. After 16 years of existence for this proud Air Base, it proves not all of the cost-saving ideas have been found.

**Mare Island Naval Shipyard, California.** Extensive savings in time and materials have been made as a result of a suggestion by Mr. Arthur J. Fox, to use masonite templates to protect the linoleum decks on submarines during overhaul. The former method of using fire retardant canvas proved unsuccessful and costly. The new templates are numbered by location so that they may be used later during overhaul visits by other submarines of the same class.

**Biggs Air Force Base, Texas.** A suggestion that has saved Biggs over \$52,000 in processing and pay-

ing TDY travel and commercial vouchers, earned for Gilmore L. Moe an incentive award of \$440.

**519th Air Defense Group**, Suffolk County Air Force Base, New York (see cut). Mr. James P. Horton, Civilian electrician of the Field Maintenance Section, 519th Materiel Squadron, Suffolk County Air Force Base, N.Y., is shown above



L. to r. Captain Albert G. Loos, Manpower & Management Officer; Colonel James H. Hancock, Base Commander, Suffolk County AFB, NY; Mr. James P. Horton, Suggestor; Mrs. Marie Petrenko, Assistant Civilian Personnel Officer, Mitchel AFB, NY.

receiving a check for \$500.00 from Colonel James H. Hancock, the Base Commander. This award, the largest award ever granted by the Civilian Incentive Awards Committee was presented to Mr. Horton for his modification of a generator test stand as a consolidated unit for extensive testing of aircraft electrical components. This modification has been disseminated throughout ADC pending review and evaluation by Hq USAF. Tangible savings in transportation, time and manhours are in excess of \$5400.00 per month and reduced AOCF status.

Witnessing the ceremony are: Captain Albert G. Loos, Manpower & Management Officer and Mrs. Marie Petrenko, Ass't Civilian Personnel Officer.

**Smoky Hill Air Force Base**, Kansas. Five civilian employees were presented checks totalling \$220, by Colonel Jack L. Randolph, Base Commander recently in colorful ceremonies. The top winner was Edward C. Loader, who was awarded \$85 for his suggestion concerning grease traps in the dining halls.

**11th Naval District**, California. Over four years ago Daniel W. Jacobson, suggested a standardized

list of forms and printed notices to be used for fire safety precautions. Recently he was informed that his suggestion had been put into Navy-wide use, and inclosed a nice check in the amount of \$475.

**U.S. Naval Supply Depot**, Scotia, New York. Benny Suggs paid off to eight Depot employees recently in a presentation made by Commander Collins. Benny favored LeRoy Gabree and Frank Zumbolo first with suggestions for a test plug in a magnesium inverter and a non-tilting device for stools in the chart correction room, respectively.

**Scott Air Force Base**, Illinois. A suggestion to save the taxpayer money paid off for Mrs. Bernice Windsor, a clerk in the Flying Safety Directorate. She received a cash award of \$335 from headquarters ATC for the development of a manual designed to simplify aircraft accident reporting. The system based on the use of IBM equipment, rather than lengthy paper work, is expected to save the Air Force thousands of dollars per year.

**Memphis General Depot**, Memphis, Tenn. Cash awards totaling \$300 were presented to five Depoittees by Colonel R. G. Norman, Commanding Officer. The principal award was made to Charles C. Rape (\$150) for his idea to drill 3/8-inch holes in the lift chain anchor bar on Dynatork forklifts to allow water to drain.

**Reese Air Force Base**, Texas (3500th Pilot Training Wing). A suggestion affording a savings of thousands of dollars, dealing with the repair of exhaust manifolds for B-25's, was made by Millard M. Wadsworth. Colonel Murray W. Crowder, Base Commander, presented him with a check for \$170.

**Naval Air Station**, Alameda, California. Mr. Manuel Ferreira, civilian employee of NAS Alameda, was recently presented with a check for \$300 by Captain G. F. Beardsley, USN, for his suggestion of a special welding jig that has saved the Navy Department \$18,000 per year.

**Cornhusker Ordnance Plant**, Grand Island, Nebraska. Colonel R. M. Silvey, Commanding Officer, recently awarded \$295 to Mr. Orye Lessor, for his suggestion of a tool to straighten the lips of damaged rocket motors, which will result in a savings of almost \$75,000 annually.

**60th Troop Carrier Group (M)**, APO 57, New York. Rhein Main Air Base, Germany, became the first base in USAF to present airmen with more than \$2000 in cash incentive awards to date recently, as 15 airmen were presented with five, ten or fifteen dollar checks totaling \$190 for cost-cutting and time-saving suggestions. Cash awards have been paid to airmen since January, 1954, from non-appropriated funds.

**U.S. Marine Corps Air Station**, Cherry Point, N.C. A new system of re-lubricating the feeding mechanism of 20mm cannon has been devised by Marine Technical Sergeant Victor E. Farkas. The new suggestion has reduced the lubricating time to 15 minutes, where in the past four hours were required for the job.

**Navy Bureau of Supplies and Accounts**, Washington, D. C. The largest amount awarded to one person since the incentive program began, \$2,015, a Superior Accomplishment Award, was made by the Bureau Chief, Admiral Arnold to Mr. Morris Samek. To date, his suggestion has saved the Navy \$588,000, and annual savings are estimated at \$1,361,000.

**Fort Dix, N.J.** — The wire communications school at Fort Dix operates under the theory that every penny helps when you're trying to economize.

In 1954, the school saved \$500 by reutilizing 10 miles of spliced and knotted wire which the students use in learning field communications here.

Even when the wire becomes entirely unusable, its value is not disregarded. It ends up at a Fort Dix property disposal unit where the insulation is burned off and the remainder goes as scrap metal.



## Letters to the Editor

Dear Editor:

Your fine magazine is circulated through our headquarters, and by the time it gets to me (A second lieutenant) someone has always torn out the products card. I for one, am interested in securing some of the informative literature you describe. Can I request it on a plain post card?

K.R.F.

*Editor's Note: Yes, by all means you can do so. Please include on your postal card the month of publication to ease the load on our librarian. For example: Show your name and address (Installation preferred) Numbers . . . . . from the June issue.*

Dear Editor:

I have just finished a Work Simplification Course here at Fort Story, Virginia. It was extremely interesting, and I wonder why every installation does not conduct a similar course?

L.M.L. M/Sgt.

*Editor's Note: Many installations are presently conducting Work Simplification Courses, and others are starting them. We cannot tell you "how many" but perhaps our readers will.*

Dear Editor:

The Ordnance Officer is pleased to enclose the subscription reply card for a one (1) year subscription to your excellent magazine. The Ordnance Division learned of this fine publication through the BASEC Comptroller. The magazine is thoroughly read and discussed here and the Ordnance Officer wishes to convey his personal congratulations to the editor and staff of ARMED FORCES MANAGEMENT for their valuable contributions in the development of Service-wide management policies and techniques through the circulation of this timely and informative magazine.

Lt John A. Bogen  
Management Officer  
Office of the Ordnance Officer

HQ Base Sec., USAREUR ComZ  
APO 21, New York

Dear Editor:

Your fine publication is a favorite with the members of the Management Engineering staff here at Dugway Proving Ground. Of particular interest in the June 1955 issue was the article, "Work Smarter—Not Harder," concerning Work Simplification. We are now training all first line supervisors in Work Simplification. Can you send me the address of Allen Mogensen? I would like the information about the Lake Placid Training Conferences.

Gerald O. McMillen, Chief,  
Management Engineering  
Dugway Proving Ground, Utah

*Editor's note: Thank you for your fine comments, and we have forwarded your letter to Mr. Robert F. Smith, Ryan Aeronautical Supervisor of Training, to secure the information you desire.*

Dear Editor:

Reference your anniversary greetings for the month of June, as noted on page 21 of your June issue, wherein you extend your anniversary greetings to the Finance Corps for 16 June 1775.

Granted that troops have been paid since that date through one medium or another, according to my information, the Finance Corps, as such, came into being 1 July 1920 and the first Chief of Finance was Brigadier General Herbert M. Lord.

This data can be found in the Army Almanac, published by the United States Printing Office in 1950, which is published as a book of facts concerning the Army of the United States.

Correct me if I am wrong—  
Major Lyle W. Edgar, AGC  
Fort MacArthur, San Pedro, Calif.

*Editor's note: Thanks Major for your information. The date used by ARMED FORCES MANAGEMENT, was furnished us by the Department of Defense, Office of*

Public Information, Magazine and Book Branch, and was given as 16 June 1775. Perhaps someone can clear this up for both Major Edgar and ourselves.

The following letter forwarded us by Mr. Carl Freedman, Office of the Comptroller of the Army, we should like to acknowledge with our thanks.

Dear Mr. Freedman:

Thank you for bringing my attention to the publication, "ARMED FORCES MANAGEMENT". I certainly found the articles of interest and value.

John W. Byrnes  
Representative in Congress

Dear Editor:

I should like you to withhold my name, but want to know why you are not publishing details of the Hoover Report, designed to save the taxpayer's money?

J. D. P.

*Editor's note: The Hoover Commission reports are presently being studied by all echelons in the Department of Defense, with a view toward accomplishing exactly what you mentioned, "saving the taxpayer's money." We are more interested in bringing you the solutions to each section of the reports after they have been reviewed, than a statement of the problem with the Commission recommendations.*

Dear Editor:

Transmitted herewith is a news release for your column "What's New in Suggestions." The ARMED FORCES MANAGEMENT magazine has been received with great interest at this installation. Further issues are looked forward to with continued anticipation.

Raymond M. Grant, Jr.,  
1st Lt, USAF,  
HO 60th Troop Carrier Group (M)  
APO 57, New York

### Army Depot Going to AF

The Terre Haute Army Ordnance Depot will be transferred to the Air Force Jan. 1, 1956. It will be operated by a civilian contractor for the storage and rebuilding of AF-owned machine tools.

More than 211,000 men in the U.S. have served as officers in the Naval Reserve.





A COMMITTEE is commonly defined as a group of people gathered together to solve a problem or to exchange information. More and more this type of group activity is becoming established as a technique for conducting the affairs of an organization. Complex systems of operation, both in business and in the military, seemingly demand combined thinking at all echelons. Several heads, it is said, are better than one.

But such a generalization suffers from over simplification and leads to "committee-itis", which may be defined here as "an addiction to the employment of a group in an organization." Transferred from textbook or lecture platform to practical application, abstractions about the values of small group activity in an organization tend to oversell the supervisor. He, in turn, enthusiastically, but indiscriminately sets up a committee to solve all his problems. When these claims fall short of the ideal goal, as they too frequently do under the circumstances, the end result is disappointment, or worse yet, aggressive resistance to all uses of a group. For greater satisfaction and productivity, the functions of committees in organizational operations should be viewed, instead, with healthy skepticism and selectivity. A refined tool can quickly become a blunt instrument when used improperly; the destruction that follows sometimes becomes incalculable. Similarly, group processes may defeat their own purposes if practised by unskilled hands.

One of the basic claims for committee action is that group analysis of a problem will result in better decisions. The implication is that the give and take of argument around a table will stimulate and create new ideas leading to solutions which the individual supervisor could not have reached through his own efforts. As a theory, all other factors aside, this is acceptable.

Now picture the dynamics of the meeting. "I don't know" . . . "I have no authority to act" . . . "I couldn't care less" . . . "I'll have to check with the boss" . . . "Don't ask me; I only came because I had to" . . . these remarks supplant the orderly process of problem solving described in the textbook.

This popularity of group problem solving in staff operations

## "Committee-itis"—An Organizational Disease

by Dr. Ray C. Maize  
Educational Specialist, Air Command  
and Staff College  
Air University, Maxwell AF Base, Ala.

But what happens in actuality?

No group decisions can be better than the level of ability of its individual members. Adherents of "group religion" are literally reaching for the moon when they imply that a kind of magic takes place to raise this level to new heights through the process of group interaction. Certainly, in some instances, an unusually skillful and capable member may be able to persuade the group to accept his own answer to the situation. Thus the fable gets about that the group accomplished the miraculous. But remove this member, and the end product is truly a pooling of ignorance.

Membership in a committee is undoubtedly an important factor in the success of committee action. Too frequently, however, it's a forgotten truism. Let's see what really goes on behind the scenes. Someone decides to appoint an *ad hoc* group, and the question arises as to who should be on it. Or a staff meeting is called, and the section chief, weighed down with desk work, decides to send a representative. Instead of asking who is qualified to serve, we have a tendency to ask who is loose. Availability weighs more heavily as a criterion for membership than capability.

makes another assumption: that decisions reached by a group are orderly—meaning logical. A considerable degree of naivete exists when we believe that a group of adults are inherently organized thinkers. Or that after learning about a system of problem solving, they will inevitably practice this system when combined into groups. Such an assumption disregards the emotional nature of the human being; it forgets that group life can be so frustrating and fatiguing that acquiescence to a decision may be the result of exhaustion, not conviction. Tired members, worn out by grappling with each other as well as with the problem, may succumb to the disease of unanimity. Somewhere, along the way, they give up objectivity and the spirit of disinterested inquiry for the peace and quiet of adjournment.

A leader who appoints a committee to help him do his work faces one of two alternatives: he must either be prepared to accept the recommendations of the group, good, bad, or indifferent; or else to reject them, in whole or in part. If he wishes to lend the illusion of complete participation on the part of committee members in the functions of the organization, he must

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select the first alternative and act upon their suggestions as though they were the best that could be made. In this fashion he contributes a sense of belonging to the group participants. Individuals, gratified by the reception given to their ideas, will theoretically work even harder the next time. Of course, the ideas may be worthless, or even dangerous to apply, but group solidarity being most important, the leader will wish to preserve the atmosphere of acceptance by signing into action the proposals laid before him. If he cannot bring himself to this point, then he faces the second alternative — that of rejection, in whole or in part. The consequences are predictable.

Convictions arrived at through group action and then ignored or altered by a supervisor will now produce either fight or flight. Under these circumstances group members face a challenge to which they may react, individually or collectively, by attacking the position assumed by the leader toward their recommendations. A chain reaction sets in, and future moves by the leader may be viewed with suspicion. The reaction may be interpreted in these words: He didn't support us once before; why should we support him now? Flight, on the other hand, is an expression of withdrawal, taking the form of cynicism or a no-work policy. Why exert myself, when it doesn't get anyplace anyway? says the disgruntled individual. Whether fight or flight, the result is disintegrative to the best interests of an organization. The leader must take upon himself the responsibility for these consequences when he establishes a working group.

Claims for better problem solving through group process may also conceal a flaw in leader and staff relationships. For one thing, delegation of responsibility to a group can become an insidious habit, revealing either an inability to make decisions alone or else a desire to postpone decision. In both events the leader has converted committee action into an insulating, protective device, that shields him from the need to sometimes stand apart. The group becomes a crutch and the leader only a pseudonym for a signature. In other words, the group

supplants the leader. The objection here, it should be noted, is not to the principle of delegation, but rather to the idea that a group can and should function on any and every occasion.

Actually a useable test for determining the nature of leader and staff relationships is the prevalence of group action in an organization, particularly of *ad hoc* committees. When groups of this kind are hyperactive, then a breakdown in staff functions seems indicated. The remarkable upsurge of multiple management boards in business, industry, and the military is a case in point. Critics of this phenomenon maintain that if an organization is functionally organized, and if position assignments are made after careful analysis, and if men are fulfilling their delegated responsibilities, then such boards are not necessary. Advocates of this "bottoms-up" management, on the other hand, argue that junior management boards operate outside the prescribed boundaries of any staff position, and though extra-legal, they are not illegal. Nevertheless, the fact that multiple management and its variants have taken hold of the imagination of many supervisors is clear enough indication that their establishment satisfies some need. The question is, what need? That of the functions assigned to the constituted staff and the established line of command?

In another fashion *ad hocs* can block the normal operations of a staff structure. When membership is horizontal, i.e., across staff lines, then the responsibilities of individuals in the group are no longer to their assigned positions, but to a higher appointing authority. So long as a member works with this group, he has a divided loyalty: to the mission of the group and to his own immediate supervisor. Sometimes these loyalties conflict, lead-

ing to a breakdown in unity of command. Too frequently, at least, people have to work in a super-charged atmosphere represented by such remarks as: "How long are you going to keep my man?" or "These days I don't know whom I work for."

The argument that committee activity, as a coordinating device, creates understanding, acceptance, and support now needs examination. The philosophy of cooperative endeavor is that when people mutually agree to a course of action, they support it because they understand it. Thus, all that is necessary to integrate the separate functions of an organization is to call a committee meeting and thrash out an issue until understanding occurs. Several factors, not usually recognized, take over at this point. First of all, understanding isn't automatic, occurring simply because people talk together. Much of the talk at a committee table never gets through to the intended receiver; he isn't working on the same wave length. Much talk is an exchange of opinion, only coincidentally aligned with fact and authority. Much talk is aimless, exposing the individual more than his ideas. Understanding, under these circumstances, is haphazard and misleading. Time, always a precious commodity when an organization has a mission to perform, gets lost when people talk in a conversational circle.

Secondly, people sometimes come to a conference table pre-committed to a course of action. They tune in their listening channel only to those who agree with them. They are fully prepared to support decisions they like; they have no intention of supporting those they don't like. To say, then, that group meetings between offices of differing interests will automatically — just because they are held — achieve

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#### AUGUST BIRTHDAYS

NAVY BUREAU OF ORDNANCE .....	August 1842
NAVY BUREAU OF SHIPS .....	August 1842
NAVY BUREAU OF SUPPLIES AND ACCOUNTS .....	August 1842
NAVY BUREAU OF YARDS AND DOCKS .....	August 1842
NAVY BUREAU OF MEDICINE AND SURGERY .....	August 1842
NAVY BUREAU OF AERONAUTICS .....	August 1921

# Cooperation in the Military-Industry Team

by Joseph Borbely  
Lt. Col., USAR

WHAT is being done and what has been done regarding the preparation of those individuals who must assume the role of administrative and management responsibility in industry and the military services?

With the advent of thermonuclear forces, atomic power, and jet propulsion comes the vital need for the mobilization of all our natural resources and manpower. Of particular interest is the ever growing cooperation between the military services and industry. The picture of military-industry cooperation is a familiar one. In World War II this was particularly emphasized. Not only did industry produce material and equipment, it trained personnel from all arms and services to operate and maintain the equipment and machinery used to win the war.

Today a new era of military-industry cooperation has emerged. The military services are now a big peace time business. Defense is a multi-billion dollar proposition. As in all big business the military services have problems of administration, management, and organization. The need for avoiding solutions to management problems by trial and error methods is urgent. The military services find that industry is in a position to offer a helping hand for objective handling of problems faced by both groups. Long years of experience, technical know-how and administrative talent are available on both sides. However, the most critical problem is not the matter of physical production, we are way out in front on that score, it is rather the selection and development of executive talent that will be capable of guiding our national efforts wisely and well.

A comparative review of both groups reveals great concern on both sides regarding the problem of management development. Here



we have a great military-industry team, welded together in the crucible of need. It is like a football team—every member dependent on each other. Industry—the strong, resolute line producing the means by which the military can carry the ball to final victory. Just as games are won by scoring touchdowns, so are military objectives accomplished with the Army, Navy, and Air Force being the ball carrying members of the team backfield, the entire team being quarter-backed by the Secretary of Defense, calling signals as he measures up the opposition and decides upon the right play to call.

The matter of training the key men who play decisive positions on this team becomes a challenging problem. At high levels in both the military services and in industry, the element of developing the executive becomes immediate. History and experience have shown that it is important that individuals who reach this level must have been given the training and critical experiences which enable them to make firing line or production line decisions when they are sent into the fray.

**MILITARY-INDUSTRY TRAINING—A TWO-WAY STREET.** The need for the exchange of management development information and experience is

not confined to one side. Just as members of the military services seek to gain from industry, so do members of industry look for training from military sources. Both industry and the military services have carefully developed programs of training. This applies particularly to those areas where information or technical proficiency is concerned. In the services all levels of manpower are reached, beginning with the programs that deal with basic jobs on the line: e.g., gunner, mechanic, etc., all the way up to general officers who attend the War College, and similar top level training schools. A review of training in the military indicates that the services have capitalized on a most important principle of executive development — that of teaching fundamentals. Any football coach will tell you without hesitation that a good team is grounded in basic skills — without good blocking, clean tackling, timing and coordination, a team does not click.

In the military the fledgling officer, whether he be newly out of West Point, Officer Candidate School, etc., is given further training in the fundamentals of his career by assignment to schools of the service he has selected. From here, the young future military executive is given an assignment in the field. It is in this environment where he begins to get the functional, on-the-job experience that will eventually give him the background necessary to make decisions and the ability to execute them. In time the officer attends the advanced school of his arm of service for further training regarding his specific role in the organization. Upon completion of each phase of classroom training, he rejoins his unit to gain further experience and to try out the principles he has studied. All this takes time. The gradual seasoning of a young executive candidate is a factor which the military has long recognized as being necessary in preparing mature leaders.

Up to this point the young officer's guided experience could be classified as specialized training. When he reaches the field grade level his training becomes broadened and generalized. The Com-



mand and General Staff College exposes him to training which calls for developing higher administrative and command skills. Training courses and problems at this level are so constructed that they simulate, as closely as possible, conditions which will most likely be met in the field. Emphasis is placed on how expeditiously and accurately the individual arrived at his answer or decision rather than on a "school solution." Military executive trainees seek to accomplish logical thinking, proper sequence, integration, and evaluation of facts. It is safe to say we still do not know the exact processes by which a particular person arrives at a decision. However, the military has developed the concept of forming an orderly "estimate of the situation." This makes for a logical and systematic examination of all factors affecting the accomplishment of the mission to determine the most suitable course of action. Many times more than one course of action accrues from the estimate. The one selected most favors future action.

As this planned educative process progresses so does the individual officer develop as an executive. This development is watched closely. Those individuals who possess outstanding qualities required for positions of high command or administrative responsibility receive further training.

Let's look at the way a civilian benefits from military executive training. Take the case of a man we will call "Pete Smith." His story is a very familiar one. Pete was inducted into the Army shortly after the Selective Service Act went into effect in 1940. Up to this date he had not received any military training. His highest technical background consisted of Bachelor of Science college degree. The Army began his career, just as it did the careers of millions of other soldiers, with basic training. This training, though then lacking in up-to-date equipment, retained sound principles that made for future development of the soldiers. After basic training, Pete was assigned to an Infantry Division. His training now was augmented by field experience with troops. At this point Pete would have been highly skeptical if

someone had told him that in less than two years he would be a field grade officer, serving as an important link in a hard hitting combat division. By coincidence his Company Commander told him just that, but Pete received his message with a "What kind of a 'snow job' is this guy giving me? I'm getting out when my year of required selective service is up."

Suffice it to say, Pete's training continued. In a very short time he was on his way to Infantry Officer Candidate School at Fort Benning, all a part of a program of progressive executive training. At Fort Benning he received training in the exercise of command, supply, mess management, and all the other things a company grade officer has to know.

He heard the same message he had listened to at his college commencement, only in different words. When he heard them this time he listened respectfully, but not until almost two years later did he fully realize their truth when he found that "state side" duty was a great deal different than the kind where men laid down their lives in "all or nothing" combat.

After OCS came a special service school. In this particular instance, new divisions were in the process of being activated. Therefore, the usual peace-time procedure of being assigned to a division and then going to a service school was reversed. Upon completion of the service school Pete was assigned

to a newly activated division. He had been informed by his school instructors, in a general way, about the problems he would meet in the field. However, their scope and intensity were far beyond what he had expected to encounter. The new division was receiving troops by the hundreds every day. Facilities for processing and housing the new personnel were limited in the desert area where the division was training. Despite these exigencies, Pete was able to perform his assignment of processing, classifying, and placement of these personnel satisfactorily. His military executive training had begun to pay off. One experience followed another until Pete's outfit was shipped overseas. His training and experience were put to the real test—the test of combat. As a field grade officer Pete was called on to make decisions involving the lives of men almost daily. Like many officers with his civilian background and experience, plus rapid military training, he was making his decisions based somewhat on intuition, hoping that he was making the right guess and adding a fervent prayer to each hard choice.

At the end of World War II Pete returned to the States and his family, eager to resume civilian status. His experience in the military had left a deep impression on him. He was determined to do what he could to assist in reserve affairs. For awhile he questioned

*(Continued on page 28)*



**JET DOUBLE EXPOSURE**—Side and bottom views of Lockheed T-33 jet trainers were caught with a single snap of the camera in this unusual air photo. In these precision-maneuvering planes, which fly 550 m.p.h., both air cadets and former propeller pilots learn jet skills for future assignment to jet fighters, fighter-interceptors and bombers. T-33s train 9 out of 10 of all the world's jet-rated fliers.



## INTRODUCTION

Take away our factories, take away our trade, our avenues of transportation, our money. Leave us nothing but our organization, and in four years we shall have re-established ourselves.

Andrew Carnegie

*(The opinions herein expressed are not necessarily those of the Dept. of the Air Force)*

ONE type of organization may be more efficient than another, but what Carnegie had in mind was the men of the Carnegie Steel Co. While infantry divisions generally have the same type of organization, a theater commander assigns particularly difficult missions only to his "crack" divisions, those whose men have superior fighting ability. And so it is men that I want to talk about.

The "top brass" of the armed forces and the "big shots" of the business world have a trait in common—the ability to manage men, the knack of leadership. The two groups carry membership cards in the same executive fraternity. They differ only in incidentals—the business man's higher pay, swankier office and better chance of living to try again.

Grant, of course, was as spectacular a fizzle in a business suit as he was a whiz-bang in uniform. This does not contradict the fact that the qualities of leadership are the same in the various fields of human endeavor; we must distinguish between executive ability and technical knowledge, it being highly significant that Grant, during his col-

# "BOYS, WE'RE GOING BACK!"

By Douglas McCabe  
Lieut. Colonel, Air Force Reserve

How great men and their great leaders differ from the rest of us—a review of military and business leadership and the techniques of developing executives, with a tribute to the men in the ranks.

## Part One

lege days at West Point, majored not in industrial engineering but in military science.

This distinction between leadership and technical knowledge explains why a production manager and a sales manager, although equally skilled in the management of men, are not listed in the personnel office as interchangeable parts in the industrial machine.

It is true that leaders are born, because a man can be a leader—or a mechanic or musician—only if God instilled in him the potential talent. But it is equally true that leaders are made, because the talent can serve no practical purpose until someone, either the individual himself or, preferably, a more experienced person who has "been through the mill," develops the potentiality into actuality, often an agonizing experience for both parties. The process of converting a potential leader into an actual one is known in the tuxedo circles as management development; we'll simply call it executive development, the idea being to develop executives. Not everyone can or wants to be an executive; it would be a sadly frustrated, neurotic world if everyone had a consuming ambition to be an executive—or a radio crooner.

Do you honestly want to know how to develop executives? Very well, I'll tell you right now at no extra cost. The trick is in what could nicely serve as the slogan of executive development: "Let George do it!" Not that mythical George who is supposed obligingly to do those messy little chores for which everyone craftily dodges responsibility, but that flesh-and-blood George, that fellow who is a potential leader—don't waste your

money trying to develop anyone into an executive or opera singer who lacks the basic talent—but who is short on experience. *George needs the chance, and would profit amazingly by it, to do those big, important jobs which you, his immediate superior, are quite convinced only you can handle.* If your conviction is correct, you're one of those dangerous booby traps, the indispensable man. Incidentally, if you're indispensable on your present job, how do you expect to get promoted?

Can you tell me a quicker and better way to upgrade a chap to the level of corporal—or general or drug store manager—than to stand him up in front of a group of appropriate size and composition and give him the experience of being temporarily in command?

Having said that the providing of experience is the trick of developing executives, and having tossed in that item about concentrating on men with *talent for leadership*, the only additional advice I can give you is to make darn sure that they have "guts," which dignified people call the will to win. That's the whole explanation of executive development in five words—talent for leadership, "guts," experience—but, just in case you don't believe it, I'm going to keep on talking for awhile.

There are three different things that I'm going to talk about: first, the growth of Grant as a military leader; second, the scientific development of leaders; and third, partly as a tribute to the men in the ranks, the fellows who get the job done, the story of the everlasting glory of Sheridan and the Army of the Shenandoah, essentially the story of that paramount factor in all human achievement, the will to win.

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ARMED FORCES MANAGEMENT

## ON AND UP WENT GRANT

Executive development is the process of creating those rare and priceless men—the employment agencies will confirm both adjectives—who have the ability to “get things done through others” instead of trying to do it all themselves. Imagine Grant fighting the War Between the States single-handed!

Getting things done through others, which is the essence of executive ability, is quite an accomplishment and pays big money. Law of supply and demand, you know. It is simply the task, as hard to do as it is easy to describe, of making up your mind where you want to go and then surrounding yourself with men who have the ability and determination to take you there.

The statistics on the need for executives are horrifying. The number of subordinates one man can successfully supervise is strictly limited. Do you realize that a corporal usually directly supervises more persons than a general does? I'd say the corporals are spreading themselves out mighty thin. And have you ever analyzed the organization pyramid of the Army? At the base there are two classes of non-supervisory employees, privates and PFC's.

Above that base there is a towering executive superstructure divided into 17 layers. Count them: corporal through master sergeant, the officers who are not commissioned, are 5; second lieutenant through colonel, the officers who are commissioned, are 6 more; and add another 6 for the various breeds of general officers—brigadier general, major general, lieutenant general, general (a modest chap without an adjective), general of the army and general of the armies. America has had only one general of the armies, “Black Jack” Pershing of World War I; how we ever managed to win World War II without a general of the armies is quite a puzzle. As for the non-commissioned officers, in the business world they would be called supervisors, not executives; but I want to emphasize right here the fact that the only distinction between a supervisor and an executive is one of degree, not of kind.

The word executive has not yet been assigned its final, classic defi-

nition. The psychologists have not concluded their debate as to its essential elements, factors, qualities and attributes and the techniques for measuring these abstractions. Until they do, you can visualize the theoretically ideal executive type by adding Washington, Lincoln and Carnegie together and dividing by three. While psychology—we must not confuse psychology, the science of normal minds, with psychiatry, that of abnormal ones—contributes materially to the appraisal of a man, employment people also like to scan the pre-employment form for the applicant's past achievements.

According to the self-appointed experts of their day, Lincoln and Grant should have fallen ignominiously on their homely faces and the two personality boys, McClellan and Meade, should have soared to dizzy heights. All four confounded the experts. The current definitions of an executive are embarrassed by the exceptions, those non-conformists who somehow succeed without all the prescribed qualities in the proportions stipulated.

The most reliable test of leadership is still the battlefield of war and the competition of business; in other words, although you can estimate a fellow's chances of sinking or swimming by calculating his specific gravity, you'll never know for sure until you toss him in the water. I do not mean to underestimate the psychologist; on the contrary, I think their services are insufficiently utilized; the trouble is that, while perhaps only a few men rise heroically, like Lincoln, above their limitations, many, like McClellan, stop growing far short of their full potentiality. Consequently a psychological analysis is, like a budget, a highly worth-while estimate but, although it takes much of the guesswork out of the process of appraising a man, it's not quite the final word.

Look at the generals who commanded the great Army of the Potomac at various times. Every high-powered executive of that era would have thrilled to manage it. McClellan, the incomparable organizer, put it together in jig time in 1861—and then Lincoln had to fire him because he would not lead it into battle; its proud builder was literally scared stiff of that first

potential scratch on its shiny new fenders, a development which psychology might or might not have been able to predict.

Lincoln thereafter endured the harrowing ordeal of watching that superb army mis-managed by a series of so-called executives before he found his man, a slovenly dressed cigar smoker named Grant whose middle name, Lincoln had reason to hope, was “guts.” Sure enough, when Grant was handed the supreme command of all the Northern armies he snatched them up in his fists and, swinging them like shillelaghs, slammed one of America's all-time greatest tacticians, a man whom he and Lincoln frequently spoke of as “Bobby” Lee, to smithereens.

Could Grant have organized even one of the Northern armies in 1861 as successfully as he managed all of them in 1864 and 1865? Someone did not think so, because in 1861 he was put in charge of an obscure quartermaster field office far from the battle areas with the assignment of buying horses.

Someone else discovered that Grant was more than a quartermaster. Between 1861 and 1865 he was given a copious dose of executive development—although, sad to say, we cannot credit anyone with having deliberately planned it that way. He was developed into a top-flight executive—a chairman of the board of directors, if you please—by being boiled, scorched, fried, baked, steamed and sizzled in the tempering crucible of *experience*. And his experience was *varied*.

**(Continued Next Month)**

The first rates of pay for enlisted men were established by federal law in September, 1789, and set the base pay for privates at \$4 a month. In July, 1872, the basic pay for privates became \$13 a month and was increased to \$15 in May, 1908. Effective June, 1917, the basic rate was \$30 a month but was reduced by the act of June, 1922, to \$21. The Pay Readjustment Act of June, 1942, set the pay at \$50, the act of June, 1946, at \$75, and it is presently \$78.



## Cooperation in

(Continued from page 25)

the wisdom of his action because the program seemed to be getting under way slowly and ineffectually. About this time Pete was given the opportunity to attend the Special Associate Course, Command and General Staff School. It consisted of extension course work, followed by progressive resident instruction.

Following the completion of this course Pete was invited to become a member of the instructional staff group, and then Department Head of the Command and Staff School in the USAR School system.

Pete can now reflect on his military career and evaluate this particular phase of his training from the standpoint of his own military management development. Here are some of his observations:

1. He recognizes that training in order to be effective must be progressive.
2. It must have practical application.
3. An individual reflects his greatest talents when he is allowed to make decisions on his own.
4. A leader always looks out for the welfare of his subordinates.
5. No formal training takes the place of experience, it only augments it.
6. Specialized training can have great advantages which are made more valuable by the type of curriculum that engenders constructive thinking revolving around decision making.
7. A leader makes himself more effective by exposing himself to

those things that contribute to his professional growth.

What does this mean as far as Pete's career as a civilian executive in industry is concerned? Do the things he gains from his civilian military training have carry-over to his everyday job responsibilities? The answer must be in the affirmative. There are many areas that he studies about which deal with the same basic principles of management. Like all principles, concepts remain basically the same, only the techniques differ. Some of the principles which apply with equal effectiveness to both military and civilian executive problems are:

1. Personnel procedures
2. Staff organization and procedure
3. Estimate of the situation
4. Logistical planning
5. Control of costs
6. Leadership
7. Maintenance
8. Public relations

The similarity between civilian and military executive action allows for an interchange of ideas whose national defense responsibilities fall in the area of industry, and those who guide our military destinies.

In addition to this generalized training Pete Smith, like many other Reservist and industrialist, has attended the Industrial Economic Mobilization Course. In this instance, his development has continued by receiving information and training which gives him useful and important insights into national and international affairs. He has learned about the need for understanding the socio-economic problems of his country as well as that of other nations. Matters concerning the location and supply of the world's natural resources were made more clear to him by the team of experts assigned to present the course. The matter of military-industry cooperation was stressed to great detail. He learned specific reasons why one cannot do without the other. The perfection of guided missiles, jet propelled aircraft, and other combat instruments makes it mandatory that the military-industry team be ready for immediate action if the need ever arises. The course material deals with the

peace time planning for mobilization of the country's natural resources in the event of war and the preparations of an economic nature that must be taken during peace-time in planning for national defense.

It has been said, "This subject has become one of utmost importance to the people of the United States. From a condition of placid isolation we have been drawn into the center of the bitter power politics of an ideologically seething world. At the same time wars are becoming more nearly total in scope than at any time in history. From 1789 to 1951, the national government of the United States has spent more for war purposes than for all other purposes combined. These facts have already affected our domestic economy. Since 1945 it has come to be accepted as axiomatic that we will be a participant in any major conflict of the future and that such a war will be far more exhausting than the struggles of the past. If great need for knowledge of a subject and lack of previous teaching in it constitute an educational emergency, we believe that there is no area in the social sciences calling for a greater concentration of instructional effort than in the field of economic mobilization.

Should this country unfortunately become involved in another world war, victory would depend to a large extent upon the peacetime preparedness. Measures that had been taken. The effectiveness would be measured by the rapidity and efficiency with which our total resources could be organized and directed to support the war effort. Such a mobilization would require the enrollment of large staffs of competent personnel in industry, civilian governmental organizations, and the Department of Defense, working under over-all civilian direction."

**INDUSTRY COACHES THE MILITARY.** We have discussed the case of Pete Smith and how he benefited in his job from his military training. Now let's look at Colonel "Dave Wilson," a career officer in the Army, who has been assigned to an industry for training. The Armed Forces have recognized the need for obtaining the

### Wyman Assumes Continental Army Command

**WASHINGTON.** — The Sixth Army CG, Lt. Gen. Willard G. Wyman will become the new deputy commanding general, Continental Army Command on August 1, the Army announced this week. Gen. Wyman leaves Sixth Army July 1.

On the same date Maj. Gen. Robert N. Young, recently G-1 on the Army General Staff, will report to Headquarters, Sixth Army. All requests for information on Young's new assignment were referred by the Army to the White House. No information was available there.

kinds of experiences for their future top military executives that will provide them with first hand knowledge of how corporate organizations are administered and managed.

Where does management development begin? It begins during the formative years of an individual's career. Experience has taught us that nothing can take the place of experience. Looking around us we see men who have achieved success by growing with an organization. These are able men but they would be the first to admit that the day of learning the hard way, the school of hard knocks, is very much a thing of the past. The complexities of the field of human relations and the developments in machines have made it imperative to do away with trial and error. In view of this it is important to recognize the need for a development program structured so that the future executive is provided with specialized knowledges and critical experiences.

This presents no easy task because, "companies can't develop executives. Executives must develop themselves . . . but companies can and do exercise considerable control over the development of executives, through the business environment they establish. The elements that effectively provide the opportunities and challenges men need to develop themselves can be defined and controlled, at least in a large part."

An approach to this part of the training program providing and controlling experiences begins with a very basic approach. For each training experience a detailed analysis is made of the jobs that go to make up the experience. As an illustration take the case of the young college graduate who accepts a job in industry. It is safe to say he knows very little, if anything, about his new job and, it is also safe to say, his experience in decision-making has been limited, particularly as it relates to his industrial environment. Therefore, to make his training have positive results, he is assigned to perform those jobs which he will later supervise. As he moves through these experiences he is left to his own devices, each job presenting

peculiarities brought about by the variables of human behavior and mechanical equipment. In this environment he gets an awareness of how the worker feels about his job, his boss, and his company. If he is accepted into the confidence of the group he gains new insights into his co-workers' strengths and frailties.

Progress in this type of program does not go uncontrolled. Periodically the trainee is summoned to the "big boss's" office where he is interviewed and given the opportunity to give his opinions and express his feelings.

Learning takes place through application or action on the part of the learner. It is what he does that he learns, not what the trainer does for him. To accomplish this the training experiences must be organized so that they reinforce each other. This kind of organization of experiences stresses logical sequence, continuity, and integration. These are organized into units of training and then woven into a tightly knit training program.

Out of it emerges the "how" of training. This forms the nucleus around which the dynamics of learning take place. In a situation such as this the participants, the learner, and the person acting as a trainer assume new roles. The trainer, in almost every case being a supervisor, sees himself in the role of a teacher. It can be said the supervisor then views his situation as being changed. He is in a position to manipulate in such a way that the learner looks at him with a new respect for his profound knowledge of the job.

The implementation of a program such as this must have its roots within the unit or department where the training is to take place. It is the detailed job analysis that forms the beginning. It should consist of only that information which the incumbent supervisor has furnished. The training program is based on this information. It is only after the incumbent leader has approved the material that it is ready to be put to use. This is done by turning over the completed training program to the supervisor who will be responsible to see that it is carried out. Thus the training he conducts is the product of his

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making. No one has told him what to do or how to do it. The identification he holds to the program is a compelling one, he wants to see it work. He interprets his work to the learner. As he develops the program he views his role as a teacher. His knowledge and experience are enhanced by the "manual" he has helped to write. His attitude toward the learner changes; instead of being authoritative he is cooperative, allowing the learner to express himself and become an active participant in the whole process.

This phase of development, as stated before, is the specialized or guided experiences part of the over-all program. After the completion of this phase of training, the trainee is ready to be assigned to a line or staff job for further experience. For the next few years he will be observed as he fulfills the demands of each assignment.

Let's assume that Colonel Wilson is a member of the Army Ordnance Corps Executive Development program. Just recently the newspapers announced a new plan concerning this program. A number of field grade officers of the Ordnance Corps have enrolled in the Executive Program of the University of Chicago, School of Business. As part of their over-all training they will, at the same time, receive on-the-job training in a number of industries.

The training phase will be inaugurated by the Inland Steel Company. Here they will receive information concerning the history, organization, and major facilities operated by the corporation. They will be informed about the establishment of production goals, production planning, involving coordination of provisions for raw materials, plant capacity and manpower, production scheduling and control. How the product is distributed, storage, warehousing, stock control, organization for dealer and customer service. A major area to be covered will be the human relations program and public relations. They will also learn about the research and development program.

In addition, each officer will spend time with individuals responsible for production operations.



They will talk to the Superintendent of the Blast Furnace Department and learn first hand the problems he faces. This procedure will continue until each officer has spent time in every operating and staff department. In this manner he will be given the "big picture" concerning the policies and operations of a large industrial concern.

**MILITARY-INDUSTRY LEARN FROM EACH OTHER.** This, then, is how Colonel "Dave Wilson," Regular Army Ordnance Office, learns from civilian executive training. The objective of the training—better performance on his jobs as he deals with industrial concerns who are manufacturing and delivering materiel and equipment to the military services. It is important to note the importance of

### Defense Secretary's Six Point Program

The Secretary of Defense, Hon. Charles E. Wilson, while board chairman of General Motors, established a 6 point safety program which has proved invaluable to them. The points are:

1. Interest in safety on the part of top management.
2. A definite established safety organization through the supervisory organization to each individual employee.
3. Adequate and capable full time safety personnel.
4. Written safety procedures and instructions for each occupation.
5. Thorough safety instruction of new employees.
6. Stimulation of interest in safety on the part of everyone.

teamwork. Here we have members of our military backfield learning from training in the executive problems of the "civilian line" and, conversely, the "civilian line" learning from the members of the military backfield. Pete Smith acquired skills from his reserve training as a member of the reserve military backfield.

In summary, cooperative effort such as this can only provide positive results. Some of the conclusions that we may draw from this are:

1. The search for executive talent is a continuous one.
2. Both the military and industry have done much in the way of preparing their future leaders.
3. The focus of attention is on developing the individual.
4. Each are developing top level executives into a smooth working team.
5. Decision making rests on getting all the facts and then making a decision which will further operation in the future.
6. The complexity and size of installations in each area have created a need for more top executives.
7. The top executive of today must deal a great deal with the public.
8. An individual must understand his objectives in order to perform effectively.
9. Cooperation between the military and industry is essential. Each contributes to the other.
10. Civilian reserve training programs can be effective when turned over to the reservists for administration.
11. Both groups are keenly interested in seeing that their organizations operate as efficiently as possible.
12. In the military services efficiently managed organizations mean a saving on tax paying dollars.

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# Book Reviews

by D. D. Corrigan

## Under the Surface

**"THE BRITISH SUBMARINE,"** by Commander F. W. Lipscomb, O.B.E., R.N., (The Macmillan Company, 269 pages, \$5.00).

"The submarine may be in the minds of many 'a devilish invention' and nothing else, but to those of us who have been privileged to serve our country in them our regard is very different. The tough life, the difficulties encountered, the close proximity of the whole company on board brings forth a regard, comradeship and tolerance which in my opinion is unique in modern life. We have been fortunate, and those who follow us will be too; the very similarity of conditions in peace and war assure a high morale and knowledge of humanity which proves an experience of value for life. I commend this book to the reader most sincerely and wish it a wide public and every success"—from the foreword by Rear Admiral G. W. G. Simpson, C.B., C.B.E., Flag Officer Submarines and Commander Submarine Force Eastern Atlantic (N.A.T.O.).

Commander Lipscomb fully describes the history, development, technical information, and achievements of the Submarine Branch of the British Royal Navy. Submarines have been his career, and during World War II he served on the staff of the Flag Officer Submarines. Admiralty assistance and submarine records aided in making this book accurate and authentic.

One interesting and broadening feature of this book is the different viewpoint, because "our country" and "our navy" of course refers to Great Britain. Another difference is in the duties of the coxswain. He looks after the provisions of rum, although on submarines the issuance is at the Commanding Officer's discretion owing to the fact that combining rum and surfacing can go to a man's head quickly.

The photographs and drawings add greatly to the value of this

book when taken in conjunction with the descriptions. A well rounded picture is given of submarines as to construction, operation, diving, surfacing, periscopes, wireless, the asdic, radar, and torpedos. The chapter on accidents, escapes, and salvages give information on this subject without over-emphasis. Commander Lipscomb outlines the early history of the British submarine, traces the advance in the last fifty years, and follows the submarine service in the two world wars.

"The British Submarine" will interest those who wish to compare American and British techniques, learn of the history of submarines, follow detailed submarine life, or will also serve as a very readable exciting book.

## Brilliant and Penetrating

**"THE AMERICAN CONCEPT OF LEADERSHIP,"** by Colonel Sherman L. Kiser, U.S.A. Ret. (Pageant Press, 234 pages, \$4.00).

Readers of ARMED FORCES MANAGEMENT will be especially interested in this book because, first of all, Colonel Kiser has been a military man for forty years. Secondly, Armed Forces members will readily understand and identify similar human behavior problems. Throughout the book Colonel Kiser utilizes problems he was aware of during his service as examples to analyze and to arrive at conclusive solutions. Thirdly, it's a fine book that every wide-awake man or woman should read, on a subject that is gaining attention today from all intelligent people. Business and Armed Forces are acutely aware of the need for leaders and are constantly encouraging interest and training programs. The truth is that "know-how" of a job is no longer enough. Behavior and personality are of equal importance.

Colonel Sherman L. Kiser's statement, "I was trained in the old school that believes the very difficult task must be done immediately,

but the impossible takes a bit longer," is proven by his book, "The American Concept of Leadership." He had done the impossible by creating a new science, the science of leadership. Elusive and mystical means of understanding leadership are dispensed with, and Colonel Kiser's approach is one of clear practical terms.

The capacity for leadership is inherent to every individual, but desire, proper direction, and understanding are the signposts directing man to develop dormant talents. Not only do executives, statesmen, officials, and high ranking officers need to be good leaders, but all positions require some understanding of positive thinking and positive leadership.

Perhaps the most constructive and logical philosophy Colonel Kiser evaluates is the premise that good leadership means that the individual must have control of his thinking so that he may guide his ideas and thoughts in the proper channels. Ideas are developed associations through awareness, inspiration and interpretation. Emotion may be defined as mental agitation, but the important factor is the effect it creates on behavior and thought. Good feelings, harmony, and positive thinking result from ideas. Tension, negative thinking, and frustration result from feelings of emotion. So it only follows that control of emotion, ideas, will, memory, observation, and imagination leads to good leadership. The success of a leader is also determined by how he is able to make decisions and actions based on positive thoughts.

Colonel Kiser further defines positive and negative thinking in terms of world government. The American way is positive thinking, resulting in democracy. Dictatorships, communism, and socialism do away with man's basic responsibilities and result in negative thinking.

The reader of this book will possibly reconsider and re-evaluate preconceived ideas of characteristics of leadership. The author demonstrates new foundations to an enlarged understanding of leadership. Presented is a science with certain principles and rules to be studied, learned, practiced, and applied. There are certain estab-

lished rules, but there are different means of interpretation to arrive at conclusive results.

Scholastic standings are no proof of the ability of leadership. Institutions of advanced learning, both civilian and military, teach leadership, but more understanding is needed. "The American Concept of Leadership" could serve as a textbook, and most certainly can serve as a guide to all interested in positive leadership.

#### War and Peace

"THE BREAKING WAVE," by Nevil Shute. (William Morrow & Co., 282 pages, \$3.50).

The sixteen successful novels of storyteller Nevil Shute include such well-remembered books as "Pastoral," "Pied Piper," "Slide Rule," and "In the Wet." His seventeenth novel does not come up to the established legacy he has founded, but, as always, Mr. Shute has a well contrived, intriguing plot. "The Breaking Wave" is lacking in readability and credibility.

Alan Duncan returns home to his Australian sheep ranch to find his family mourning the suicide of a young woman recently employed as a maid and serving as a companion. The plot unfolds in one evening as Alan ponders over the life and death of this girl, and discovers through hidden papers that she is the person he has been seeking for several years. Flashbacks and memories tell the story of this girl during the war years when she was a Wren in England.

In reconstructing her life, Alan finds the answer to his own scheme of living.

A clear but depressing picture is given of young men and women in wartime, whose youth was spent in the close comradeship of constant danger, and who find it difficult to establish a satisfactory life for themselves in peace time.

#### African Adventures

"LEOPARDS IN THE NIGHT," by Guy Muldoon (Appleton-Century-Crafts, Inc., 306 pages, \$4.00).

Who has not dreamed of stalking lions through the tall grass of Africa, following the spoor of elephant tracks, or hunting hippos

from a canoe? However, there is no danger from charging wild life, no insect bites, and no sleepless nights, but only pleasure in tasting the thrills of jungle hunting by comfortable hammock reading of "Leopards in the Night."

Guy Muldoon was practically "born in the business" of professional game hunting. His father owned a six-thousand-acre cattle ranch in Northern Rhodesia, and began training his son on the subject of lions when Guy was six years old.

Nyasaland was only discovered 100 years ago, and it has been a constant fight to keep animals and jungle from the farms in order that there can be cultivation. In 1938 Guy was given a post in Nyasaland, and later became an agricultural assistant in the Colonial Service.

At the time of the book he is in charge of an experimental fruit farm started by the Nyasaland government. It was not Guy's duty to kill lions and leopards, but it was good for the crops and cattle to destroy the marauding beasts, as this created good feelings with the natives. The natives were so grateful to have the lions killed, they would then follow instructions; not that they believed the crazy things white men asked them to do, but they were impressed, became friendly, co-operated, and could concentrate on growing crops without fear from wild animals.

A good hunter not only protects people from wild life, but often protects animals from civilization. Some of Mr. Muldoon's greatest problems were in the game reserves where he was Game Control officer.

Hunting, like many other things, is a process of mistakes and experiences, but a careless hunter never lives to enjoy old age. Anyone planning a "ulendo," or Nyasaland safari, could well profit from the adventures of Mr. Muldoon. Lions plan, execute, and maneuver in a manner similar to trained soldiers. The superstitions of natives that witches and evil spirits dwell inside certain animals can lead to tragedy. Buffalo is the most dangerous animal to hunt, but more humans are killed by crocodiles than by any other wild animal.

For factual information on hunting, for a clear picture of the perils

of African living, or strictly for enjoyable reading, "Leopards in the Night" fills the bill.

#### Recommended Reading

"PRINCIPLES OF MANAGEMENT," by Harold Koontz and Cyril O'Donnell (McGraw-Hill, 664 pages, \$6.50).

An analysis of managerial functions, outlining the five basic jobs of manager; organizing, staffing, directing, planning, and controlling.

"FROM MY EXPERIENCES," by Louis Bromfield. (Harper, \$4.00).

Malabar Farm presented with zest, humor, affection, and enthusiasm.

"THE RICE-SPROUT SONG," by Eileen Chang (Scribner, 182 pages, \$3.00).

Authenticity and irony are combined in this glimpse of what communism means in the lives of simple Chinese villagers.

"JULIUS CAESAR," by Alfred Duggan (Knopf, 205 pages, \$2.50).

Caesar is unburied for all the readers to understand, not praised nor blamed, but believed.

"THE LAST TEMPTATION," by Joseph Viertel (Simon & Schuster, 437 pages, \$3.95).

A convincing account of the flight of European Jews to Israel.

"AMERICA'S NEEDS AND RESOURCES," by J. Frederic Dewhurst and Associates (Twentieth Century Fund, 1,148 pages, \$10.00).

An analysis of the postwar American economy and a forecast of the prospects for the coming decade.

#### Thunderjets Set Mark On 4,840 Mile Flight

Four 5th Air Force Thunderjet fighter-bombers have flown a record-breaking 4,840 miles from Japan to Australia in 12 hours and one minute.

The flight, which was refueled three times in mid-air, was led by Col. Harold M. McClelland. Other pilots were Lt. Gerald Robinson, Lt. Col. Virgil K. Meroney and Lt. William E. Miller.

## Committee-itis

(Continued from page 23)

harmony and unified effort is to place undue reliance upon a group catharsis of emotions and loyalties. This wiping-out effect is much to be desired but like a will-o'-the-wisp, it isn't always there when needed.

Coordination, sometimes misconstrued to mean simply informing the other man, is very much involved with the human relations pattern of operation in an organization. Getting people to work together is a far greater task than those who use the old appeal, "Let's all get on the team," ever seem to imagine. Animositities, for example, established by incidents of clash in a staff meeting, may carry over into individual grudges. Tensions, created because people are different and don't necessarily get along together, are not relieved of their own accord in the atmosphere of group relationships. Proponents of the idea that men, working together in small groups, learn to establish desirable behavior patterns with each other aren't really telling the whole story. The truth and wisdom of their belief lie in its possibility. Our misconception arises from our whole-hearted acceptance of its probability.

Of course the theorist would argue that individuals trained in conference techniques would be aware of these group pressures and of the pitfalls of small group activity in an organization. True, but "committee-itis" doesn't leave much time for training. The pressures of work from day to day prevent taking time out to develop a skill of this kind among members of an organization. Besides, nothing seems more natural than to collect a number of people around a table and let them talk. Only "longhairs" would blow this thing up to undue proportions. So it is that quality suffers at the expense of quantity, and the prudent begin to wish themselves elsewhere when a new committee is formed or when they receive notice of a new staff meeting.

In a positive sense there is no need for complete disillusionment with a group approach to the work

of an organization. Recognized and accepted as a highly complex skill, involving human relationships and many different techniques, group processes can be used for maximum efficiency, but only when appointing authorities know what a group can do, for good or for ill, to their organizational structure, and the members of a group know how to

make a group productive. Casual groups casually handled turn out casual results. Unfortunately, we have to live with the consequences. On the other hand, meetings called for a purpose, selectively manned, and led in orderly fashion have a more optimistic prognosis. Which kind do you want in your organization?



Secretary of the Air Force Harold E. Talbot and members of his staff leave the Pentagon Building in the nation's capital, to board an Air Force H-21B helicopter during the mass evacuation for OPERATION ALERT—1955.

### OPERATION ALERT UNDERSCORES HELICOPTER ROLE AS H-21'S EVACUATE KEY GOVERNMENT OFFICIALS

Helicopters were used for the first time in a Civil Defense mass evacuation during Operation Alert—the first test in the United States of a mock hydrogen bomb attack.

In the nation's capital a fleet of 12 Army and Air Force Piasecki-built H-21 "Work Horse" helicopters descended on the Pentagon area and, in a matter of minutes, evacuated more than 100 key government officials, including Defense Secretary Charles Wilson, Air Force Secretary Harold Talbot, Army Secretary Robert Stevens, Navy Secretary R. B. Anderson, Chairman of the Joint Chiefs of Staff Adm. Arthur W. Radford, and several Cabinet members.

The officials and their staffs were flown to undisclosed destinations within 300 miles of Washington, where, with President Eisenhower and other government personnel, they continued the normal routine of government operation for three days. During that time H-21's provided courier service.

The alert began at 12:05 noon on Wednesday, June 15. Immediately, four Air Force H-21B's landed on

the Mall side of the Pentagon and evacuated such persons as Secretary Talbot, Lt. General Nathan Twining and approximately 35 others. From the southwest side of the Pentagon, on the site of a proposed heliport, five U. S. Army H-21C's took Secretary Wilson and other top ranking Army and Navy personnel to their evacuation points. From the nearby Fort Meyer, Va., parade ground, three H-21C's evacuated members of President Eisenhower's Cabinet and members of their staffs.

In the nation-wide alert 58 cities were "wrecked," more than 8,000,000 persons "killed," and an additional 6,550,000 "injured." In addition, radioactive fall-out contaminated wide areas. Formal evaluation of the effectiveness of Operation Alert is currently under way.

**Chapels at 10 installations in the Third Army Area are now being air conditioned while eight other chapels will be air conditioned at an early date.**



## Mercury Run

(Continued from page 7)

tures of FTD is the fact that it is a business built on faith. This is the case because patrons rarely see the flowers and rarely know the florist who delivers them.

While FTD was developing in this country, a similar network of florists was being established in England and in Western Europe.

The currency exchange was the biggest obstacle to the international telegraphing of flowers. For instance, a florist in Chicago had no idea of how many flowers to deliver when he received a Calcutta order for a 60-rupee bouquet.

It was the fleurin—a term derived from the French word for flower—which finally solved the problem. The fleurin was pegged to the most stable and easily understood currency media, the Swiss franc and the American quarter dollar. Now all Interflora orders are transmitted in terms of the fleurin and every florist knows the fleurin value of his own currency.

"There are many facts and figures involved in FTD," said one official of the association, "but the spirit that moves us cannot be put down in a ledger. This spirit is the love of flowers and the pleasures they bring."

## New Mouthpiece

(Continued from page 9)

unit, such selection might have taken weeks; instead, we were fortunate in our pre-appointment screening—nearly all of the officers chosen were professionally active in one or another of the fields necessary to our purpose, and they very nearly selected their own positions within the flight. The organization was filled out as planned:

**Research:** This unit is under the direct supervision of the commanding officer, since all sections require its services. Material which does not require immediate and direct action by any other section will be filed and recorded here.

**Photographic Section:** The photographic unit, which is fully equipped with camera and developing facilities—both still and motion picture—is also under the

direct supervision of the commanding officer. In the event of an exceptional number of assignments, the commanding officer reserves the right to place priority regulations upon this unit.

**Radio-Television Section:** Participants in the radio-tv section create and develop programs for local consumption by adapting current films, photographs and tape recordings to fit "public service" time not otherwise occupied by commercial sponsors. Adaptations and original work are designed toward fulfilling the flight's mission, i. e., producing material of interest to reservists in the Chicago area. Material can be utilized *only* if it applies to the Air Force or Air Force Reserve, or can be given a Reserve slant.

**Press Section:** A unit headed by a well-seasoned news editor. Although this section is given maximum flexibility, it is guided by Reserve objectives.

**Information Section, Internal:** While Internal Information operatives handle much of the material as do radio-tv and press groups, they are more directly concerned with digesting and directing information to reservists. This group edits and produces an Air Reserve Center newspaper called *The Chicago Air Reservist*, which reaches all reservists in the entire Chicago area.

**Industrial Relations:** In the event of attack, Chicago is a prime target for any enemy. Through proper industrial relations, the Air Force can gain much support as the vital factor in this phase of national de-

fense. It is important, too, that industrial management understand the Air Force program, know AF Reserve plans, and realize the importance of their employees' part in both.

**Field Liaison:** This section maintains direct contact with all other sections—to see that other sections of the flight accomplish their missions and assist where possible. They see that all pertinent information is properly channelled for distribution and use.

**Reproduction and Distribution:** Charged with the responsibilities of a message center, R&D produces, assembles and mails out internal information materials in addition to maintaining records for the flight.

As in any other organizational function, careful selection of thoroughly qualified men was profitable. The problem was assimilated immediately, and ideas for functional action began to flow. Some of the officers, whose civilian occupations permitted it, volunteered for short tours of active duty to assist in putting the flight into operation. Within a matter of days, the Center's newspaper plans were completed and a suggested format submitted for approval. Assisting in the plans and offering the help of higher headquarters, Captain William G. Alloway, representing Tenth Air Force, gave the flight's efforts added impetus by budgeting necessary funds for the newspaper's publication.

Simultaneously, spreading from the Internal Information Section, other units began to function. The assignments have been few—simply because the professional caliber of men chosen make assignment unnecessary; exchange and interflow of ideas serve to make each operative self-starting.

Thus the Air Force Reserve has been given a new mouthpiece. The flight is still young—not yet three months old—but provided the present enthusiasm continues (and there is every indication that it will), I venture to say that this Information Services Flight and similar flights that will certainly be established, will be in a position to do great service for not only the Air Force but for the nation as a whole.

## Aluminum Truck for the Army

An experimental, all aluminum, two-and-a-half ton truck having light-weight characteristics that would make it especially useful in air-borne operations has been developed for the Army.

Although the new aluminum truck carries the same load as the conventional two-and-a-half ton truck, it weighs only 9000 pounds and could easily be transported by air.

Among the features of the T55 are a fuel injection system (instead of a carburetor), hydraulic disc brakes, automatic gear shift and ball joint suspension.

## Ordnance Plus

(Continued from page 5)

officers of the shore establishments are the direct representatives of the Chief, Bureau of Ordnance, and are responsible for the development and maintenance of effective, efficient and economically operated organizations and operations.

However, the concept of decentralization must be tempered with a centralization of certain functions for the over-all plan to be effective, and to give direction to the effort.

To effect the necessary centralization, the Bureau uses two major management tools, or media; The Shore Establishment Budget and Reporting System, which includes the extension of the Comptroller-ship concept to the field, and the Management Evaluation Program.

Through the Shore Establishment Budget and Reporting System, the Bureau has a planning and control instrument which covers these three basic responsibilities of management:

### Program      Funds      Manpower

Through the Management Evaluation Program, all levels and aspects of station management are inspected and reported on annually. Also through the Management Evaluation Program, the Bureau controls the three other facets of management, those of:

### Missions      Organization      Inspection

The judicious use of the management techniques described above, enables the Bureau to control a larger number of activities, i.e., increase the span of control. (Such a span of control is 3-dimensional, determined by:

**BREADTH**—the number of persons reporting,

**LENGTH**—average numbers of matters handled, and

**DEPTH**—the relative complexity of matters handled).

For this type of decentralized control, there must be effective communications, both mechanical and physical. It is a truism that communications must be a two-way affair. The lines of communication between the Bureau on the one hand, and each of the shore establishments on the other, require diligent tending by all concerned. The Naval Ordnance Establishment

utilizes all of the well-known techniques of communications, such as wire services, mail, travel, and the Navy Directives System. In addition, use is made of other facilities, such as the "BuOrd Comptroller's News," conferences, training courses, news bulletins, and professional organizations. Additionally, such special publications as the "Management Appraisal Guide" are distributed to the Bureau and the field for their use and application.

Another example of the means used by the Bureau of Ordnance in providing the kind of management guidance which prevents decentralization from becoming organized irresponsibility is the recently published Management Manual for Naval Ammunition Depots, (Ordnance Pamphlet 2184).

Though primarily designed for Naval Ammunition Depots, this publication also has a broader relevance; it is in essence a systematic approach to the problems of all industrial management. Every executive in every management situation confronts these same problems of planning and control, with all their ramifications.

Included among the eleven chapters of OP 2184 are these: Command Administration, Organization Planning and Control, Financial Planning and Control, Production Management and Material Planning and Control. The manual appears in a loose leaf binder. It is planned to convene a revision committee each summer, to correct the manual, keep it up to date, and expand it as necessary.

The manual is intended to serve as a reference book, a record of management progress of the Ammunition Depots, a catalyst for management improvement, a guidebook for officers newly ordered to Depot duty, a management measuring stick, and a means for improving communications among Depots.

In its Work Measurement Program the Bureau of Ordnance has a practical and reliable device for organizing and using the basic facts about manpower and workload in the Ordnance Establishments. Basically a tool for measuring group man-hours and group output, Work Measurement supplies the Bureau

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and its field activities with up-to-date information on (1) the overall distribution of effort among the various productive and support operations and (2) productive efficiency spelled out in terms of man-hours per work unit of output (performance rates).

Performance rates are compared systematically against standards: first, against standards applicable to all stations of a given type (ammunition stations, for example), and second, against standards reflecting special circumstances existing at each individual station.

### Applications

Work Measurement applications currently fall into three groups:

Manpower planning at the bureau, station, and operating levels.

Budgeting for operations of the field activities, particularly in support operations (Public Works, Supply, etc.)

Evaluation of specific and overall performance, in terms of standards.

Up to now I have discussed primarily the relationship of the Bureau to its field activities. A problem of equal importance to the Naval Ordnance Establishment is the effective use of the talents of the individual. In this field, one of the most difficult problems to resolve is the relationship of the military to the civilian employees. Because of the traditional freedom from restraint and regulation of their profession, scientists, in particular find difficulty in working under military regimentation. However, the military influence on scientific research and development is a necessary and desirable one, for it brings to the development of weapons, the practical experience of the professional naval officer who knows at first hand the needs of the fleet and the conditions under which a weapon must operate.

To attack this problem, some of the research activities of the Naval Ordnance Establishment have employed an organizational scheme that harmonizes the vital contributions of the naval officer on one hand and the scientist on the other toward development of naval weapons, without a concomitant thwarting of the initiative of either.

The research activity, under this plan is headed by a senior naval officer. Reporting directly to him is the technical director who is responsible for the entire effort of the scientific personnel of the activity. This arrangement permits a freedom of scientific thought and effort but ensures that, at the top level, the experience and practical viewpoint of the naval officer is injected into the development process.

### Leadership

With the Ordnance family consisting of approximately 68,000 people, of whom 90% are civilian, and 10% military, adequate leadership and staff support cannot be taken for granted at any level. Furthermore, unlike the Army Ordnance Corps, the Bureau, has no Ordnance Districts, and is more centralized for that reason. Also, there is no separate Ordnance Corps in the Navy; rather, we depend for our technical direction upon line officers who have received postgraduate education at the Navy Postgraduate School. This being the case, the Bureau uses every available means to keep abreast of the very newest and best techniques in leadership and training, and for the exchange of such information. Special effort is exerted to provide the techniques and training best adapted to the needs of our personnel. In addition to the standard navy training programs, the Bureau is using a scouting technique to uncover additional sources of leadership training. For instance, the Bureau was the first in the Navy to arrange for regular participation in the Ordnance Management Engineering Training Program, at the Army Ordnance Management School at Rock Island Arsenal, Illinois. Here, not only is leadership training provided in a broad sense, but opportunity is also afforded for the interchange of information between the services.

The Bureau itself holds monthly luncheon conferences of its key personnel, where the aura of mutual interchange renders an invaluable service to all concerned.

All of these opportunities for leadership and leadership training are available to both uniformed and civilian personnel where needed.

I have tried briefly to describe

something of the Bureau and its farflung activities, how we work, and what we are doing. It is our heavy responsibility to ensure that the United States Navy stays ahead in weapons, and we are doing our best to discharge that responsibility. Good management, and proper application of its techniques and principles will play its part.

## RADIOPLANE HAS NEW ENGINEERING BLDG. AT VAN NUYS

A new, 28,000 square foot air-conditioned engineering and research building has been completed for the Radioplane Company at Van Nuys, California, to house activities of its expanding weapon systems division.

The new brick building will provide office, drafting room, conference room and electronic laboratory facilities for approximately 30 engineering personnel assigned to high-speed, high-altitude pilotless aircraft and guided missile projects of the Radioplane Company, a subsidiary of Northrop Aircraft, Inc. Cost of the building is being financed entirely from corporate funds.

Completion of the building brings to more than 200,000 square feet the total area occupied by the Radioplane Company, pioneer producer of pilotless aircraft. Indicative of the company's growth is the fact that Radioplane occupied only 979 square feet of covered area in 1939.

Erected in 120 days, the new building has been required to keep pace with Radioplane's expanding research and development activities under U.S. Air Force contract in the unmanned jet aircraft field.

Chief production item of the company continues to be the OQ-19 radio-controlled target drone system, which is used by all of the Armed Forces for gunnery training.

Radioplane Company now has more than 400 engineering and scientific personnel. With more than 3000 engineers and scientists employed by Northrop, the two companies possess one of the nation's most experienced and talented teams in the aeronautical and missile engineering fields. Both companies have engaged in pioneering activities in the field of pilotless aircraft. Radioplane, as the original and principal source of radio-controlled target drones for the Armed Services, has built more than 40,000 pilotless aircraft. Northrop with its Snark B-62 program has been active in the missile field for eight years.





## NEWS BRIEFS

from the

# SERVICES

**Naval Ammunition Depot, Fort Mifflin.** The nation's oldest Naval Ammunition Depot celebrated its 100th anniversary at a special open house recently. Among the distinguished guests was Mr. Arthur C. Kaufmann, a director and former president of the Greater Philadelphia Chamber of Commerce. Captain John Quinn, USN, Assistant Chief of the Bureau of Ordnance, and Director of Naval Ordnance Establishments, was the principal speaker. Commander J. J. Perecko, USN, Commanding Officer, was presented with a plaque citing the fort for service rendered to the nation.

**Fort Dix, New Jersey.** Dedication of a new 400-unit Wherry Housing Project recently, marked a combined service effort. The unit will be evenly divided between Fort Dix and McGuire Air Force Base personnel. The project is named in honor of Major General Chase W. Kennedy.

**11th Air Division, Alaska.** A Management Improvement Contest for military personnel assigned to the 11th Air Division, was announced recently by Major Charles R. Russell, Director, Manpower and Organization for the Division. The contest which ran during June and July, offered some interesting prizes, and will be continued with a monthly prize given for the best suggestion.

**Air Materiel Command.** Assets of more than \$35 billion top those of Metropolitan Life and American Telephone and Telegraph combined by more than \$9 billion. Approximately two out of every three dollars of Air Force money channels through the Air Materiel Command. In addition to the usual suggestion awards plan for civilian employees AMC gives its procurement employees a "Buy of the Month" award for making the best contracting deal.

**San Francisco Port of Embarkation.** San Francisco Regional Office, Army Audit Agency, and San Francisco Port of Embarkation collaborated in setting up a Fort Mason Resident Office of the Audit Agency to handle continuously Port audits formerly performed by traveling AAA crews in limited periods of time. The Resident Office is expected not only to level out the auditing work but also to have it performed by AAA personnel fully familiar, through daily contact, with Port operations, methods and personnel.

**SSN-575 (Seawolf).** The new SEAWOLF, like her sister ship, the NAUTILUS (SSN-571), slid gracefully down the ways at Groton, Connecticut, in colorful ceremonies on July 21st. Commander Richard B. Laning, USN, has the job of the new skipper, and carries with him the best wishes of the staff of ARMED FORCES MANAGEMENT.

**Fort Sill, Oklahoma** (522d Inf. Bn.). Company B carried away the Fort Sill Supply Economy Plaque, for the first quarter of this year. Sergeant Earl R. Thomas is supply sergeant. The 96.3 grade headed the other 70 unit-sized outfits on the reservation.

**United States Coast Guard.** A bronze monument recently dedicated at Battery Park in New York in honor of the men and women who served in the Coast Guard, has become a point of interest in the city. The bronze reproduction of a sketch by Coast Guard artist Norman Thomas, shows two guardsmen evacuating a wounded soldier at Luzon in the Philippines campaign.

**Military Air Transport Service.** The world's largest air carrier who marked their seventh anniversary in June, released that—more than 3,000,000 members of the Armed

Forces and people on government service have flown the 110,000 miles of MATS global air routes since it was organized.

**USS Glacier (Icebreaker).** The largest and most powerful icebreaker ever built by the United States, will make her maiden polar voyage in November when she sails with Task Force 43 to the Antarctic on "Expedition Deep Freeze." The Glacier has a crew of 19 officers and 320 men. She is 310 feet in length, has 21,000 horsepower, and is the strongest-hulled and best equipped icebreaker ever constructed for the Navy.

**Fort Bragg, North Carolina.** Construction is under way on the new \$8,800,000 Army Hospital scheduled for completion in about 2½ years. The new hospital will be nine stories in height in its main sections, with wings of four stories rising one story above ground level.

**Manhattan Beach Air Force Station, New York.** (2225th Personnel Processing Group). The group recently transferred from Camp Kilmer, New Jersey, are processing approximately 10,000 airmen each month. Approximately 1,000 AF personnel and civilians are used in the operation of the station.

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### CHIEF, A&AFES ADDRESSES OPENING OF PX SCHOOL

Major General Howard L. Peckham, Chief of the Army and Air Force Exchange Service, on Monday, 31 January, traveled to Fort Lee, Virginia, to address the opening class of the new Army Exchange Operations Course.

As principal speaker, the General told the class that "all eyes will be upon your efforts and achievements. The next six weeks will demand hard work and constant study," he said, "but the job for which you men are being trained is a vital one and one that needs highly trained and alert administrators."

This is the first class to come under the direction of the QM School since duties of the Post Exchange Officer were transferred from the Adjutant General Corps to the Quartermaster Corps.

# PRODUCTS

## *designed to deflate production Costs*

As a service to OPERATING DEPARTMENTS and PURCHASING OFFICERS, ARMED FORCES MANAGEMENT will provide you with a selected list of manufacturers' products.

A Products Information Library has been established and descriptive literature, catalogues, and reference material is available to you without cost or obligation. The firms have been carefully selected, have a high standing in their respective line, and deserve consideration. They are NOT, in each case, advertisers in ARMED FORCES MANAGEMENT, but each offers you a service or product which we feel will be helpful in your operation. Operating and Purchasing departments are respectfully urged to take advantage of this service.

### How to Use Armed Forces Management's Library—

Inserted in this issue, a postage free card is provided for your convenience in requesting descriptive and informative literature. This will be forwarded to you, without obligation. Many cost saving ideas are generated by Operating Departments that have referenced information on products available. Purchasing Officials will find this type of information invaluable. All that need be done is: fill in name and address, circle that which will assist you, and drop in the mail.

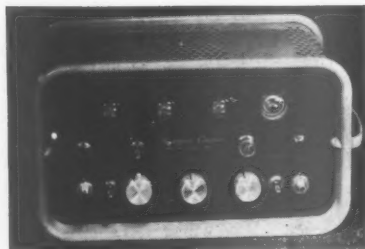
**FLEX-I-LINE CONVEYOR CORPORATION.** These low cost, high performance overhead cable conveyors, adaptable to all present monorail installations, are engineered to give smooth, quiet, trouble-free operation. Low friction in the system results in longer life and little or no maintenance or down time. The exclusive one-piece trolley brackets are joined by pre-



formed improved plow steel cable segments. A descriptive brochure on these modern, low weight and flexible systems is available for interested installations.

*For more facts request No. 1 on reply card*

**WESTPORT ELECTRIC** (See Cut). The new WE-210 is a small, lightweight, inexpensive, yet highly accurate Time Interval Meter and Frequency Standard using glow-transfer tubes in the counter unit and a crystal-controlled oscillator as the time base. Time is displayed to the nearest 0.0001 second by



four easily read decades. Two ranges of 1 and 10 second are provided; however, longer intervals are easily noted by watching the thousands decade, or through use of an auxiliary electro-mechanical register.

*For more facts request No. 2 on reply card*

**MARTIN-PARRY CORPORATION.** A new kind of portable metal partition that's as easy to handle as ordinary office furniture is now being introduced by this organization. Named "Metalwal Jr", this new product of an old-established manufacturer, affords limitless flexibility in the division of office or other space. These pre-decorated partitions come in three standard heights and 10 standard widths.

*For more facts request No. 3 on reply card*

**TELEX INCORPORATED.** Re-design of a miniature interstage transistor transformer has produced a new model  $\frac{1}{2}$  smaller than the recent prototype. Measuring only  $\frac{3}{8}$ " x  $\frac{3}{8}$ " x  $\frac{3}{8}$ ", the transformer has numerous industrial and military uses. Information is available on the complete line of TELEX electronic devices.

*For more facts request No. 4 on reply card*

**UNIVERSAL FORM CLAMP COMPANY.** Catalog No. 160 is available to military installations that are interested in saving costs in construction. This new catalog contains product information on a complete line of Concrete Forms, Form Ties and Concrete Accessories. Installation Engineers are urged to take advantage of this generous offer.

*For more facts request No. 5 on reply card*

**AMEUROPE INCORPORATED.** Do you have a numbering problem? This long-established manufacturer of all types of Numbering Machines, have recently introduced a new low-priced automatic hand numbering machine GLOBE MODEL 10, 6 wheel, 7 action. Machines to specification are the speciality of this organization.

*For more facts request No. 6 on reply card*

**ANGIER CORPORATION.** Now available to solve packaging problems are paper bags with inside vapor that prevents corrosion. They save greasing and all of the han-

dling and equipment that goes with it. Saves degreasing, hours of it! A brochure describing the VPI wrap, vapor-from-paper, is available to interested organizations.

*For more facts request No. 7 on reply card*

**DAYTON ELECTRIC MANUFACTURING COMPANY.** There is a Dayton Fan for every cooling and ventilating need. Designed and built to highest service standards, these low-cost fans are described in an interesting brochure available to interested organizations.

*For more facts request No. 8 on reply card*

**ARMSTRONG CORK COMPANY.** A new booklet entitled "New ways to Remodel Your Home" has been released by this time-honored manufacturer. It contains information of interest to Post, Camp and Station Engineer and Installation Officers in addition to individual home-owners desiring to add an extra room, easily and economically.

*For more facts request No. 9 on reply card*

**MARWOL PRODUCTS COMPANY.** Transporting heavy, space-consuming office files to far-flung areas of military operations may be a thing of the past with the advent of the expendable fiberboard units. Small drawer-files, records-boxes and the ordinary in-out baskets are fashioned from clean, corrugated fiberboard. The complete line includes a counterpart for most of the standard metal units. They may be shipped flat and quickly set up for use.

This manufacturer has pioneered the use of fiberboard to the services, and has produced an expendable ten-man shelter and boxes for packaging weapons, medical supplies and a host of additional equipment.

*For more facts request No. 10 on reply card*

**MICHIGAN ELECTRONICS, INCORPORATED.** Are you interested in an invisible salesman who repeats such messages as—"DRIVE SLOWLY LEAVING THE RESERVATION"—"CONSERVATION IS YOUR BUSINESS"—"WORK SAFELY TODAY"—"HAVE YOU A SUGGESTION"—"WATCH FOR FIRES", and thousands of additional messages? This leading elec-

tronic organization has designed a small box (size of a brownie camera) with an automatic activated tape recorder, which will "call out" your message at the approach of a human being or vehicle. This low-priced machine is sturdy, and with simple adjustment the message can be changed daily. Don't you agree that for a nominal expenditure, such a machine would be invaluable near time clocks, restricted entrances and in exchange stores?

*For more facts request No. 11 on reply card*

**SAFE FLIGHT INSTRUMENT CORPORATION.** Another aircraft manufacturer was added to those already approving the new Speed Control System, when Cessna Aircraft added the installation (optional factory) on the Cessna 170, 180 and the 310 twin engine models. The Safe Flight Speed Control System, enables the pilot to achieve the best possible speed for take-off, landing and low speed operations. Basic principle involved is that of wing lift measurement worked into a simple computer.

*For more facts request No. 12 on reply card*

**THE CHICAGO HARDWARE FOUNDRY COMPANY** (See cut). A new accessory for the Sani-Dri electric boot dryer, has recently



been developed which is now available for drying gloves. Twin streams of warm air dry the gloves quickly without danger of burn or excessive heat damage. Complete

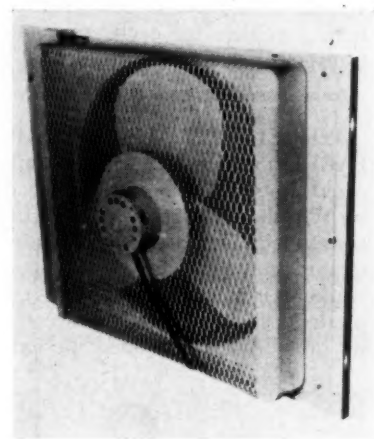
information is available to interested organizations.

*For more facts request No. 13 on reply card*

**J. E. BURKE COMPANY.** A new FORM-A-STAGE, portable prefabricated unit of all-steel construction, quickly and easily erected in less than an hour with a single wrench, is the answer to Armed Forces Officers called upon (sometimes at a minute's notice) to put up a stage for a parade reviewing stand, or many other purposes. All parts are cut to exact size and compact for minimum storage space. Available in 5 x 10' or 10 x 10' sections . . . 26" or 42" high, the FORM-A-STAGE available with heavy-duty casters, can be an inexpensive answer to your prayers.

*For more facts request No. 14 on reply card*

**PRECISION EQUIPMENT COMPANY** (See cut). Here is a timely summer announcement of



a new extra powerful window exhaust fan capable of moving free air at a fast rate of 2950 cubic feet per minute. Easy to install in 27 to 34" wide windows which can be raised or lowered without moving, this low-cost exhaust fan makes living and working comfortable throughout the year.

*For more facts request No. 15 on reply card*

**FELT & TARRANT MANUFACTURING COMPANY.** A completely new 10-key calculating machine called the COMPTOGRAPH "202" is available by this maker of the world-famous Comptometer. The "202" adds, subtracts, multiplies and even divides. Known as the fastest, quietest, easiest 10-key machine to operate,



its design incorporated work simplification and eliminates lateral hand movements. Additional information is available to those installations desiring replacements for older-type equipment.

For more facts request No. 16 on reply card

**WELLS CARGO** (Division of Prairie Schooner Inc.) A new vehicle in transportation circles is the Wells Cargo, a junior semi-trailer designed for use with pickups or other light trucks. It is free-standing and can be hooked up by one man in a matter of seconds. With its payload capacity of 4 tons (710 cu. ft. of enclosed space), it enables a small truck to accomplish a big job for a minimum dollar. Allowing maximum utilization of vehicles with a flexibility before unknown, this semi-trailer can well be the Post or Base Engineer's answer to a portable electric, plumbing or carpenter shop. Operation within vehicle allowances is now possible with a vehicle for each crew and transportation for each foreman.

For more facts request No. 17 on reply card

**WHEELER PROTECTIVE APPAREL** (See cut). A new aluminized fire suit has been announced by Wheeler Protective Apparel Incorporated. Designed to offer adequate protection for fire rescue workers, it incorporates an air respirator which enables the wearer to breathe for extended periods



of time. The new suit, called the Wheeler "Fire King", is made from aluminized tropic-weight asbestos fabric which reflects up to 90% of the heat generated and makes rescue possible even in direct flame. Complete information is available to those fire-conscious commanders desiring maximum protection for personnel.

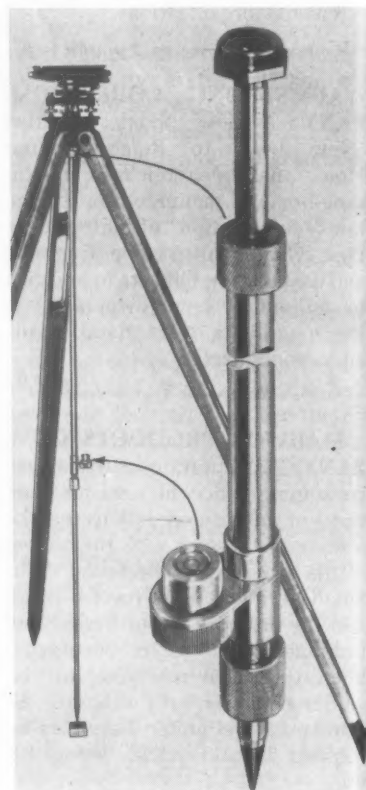
For more facts request No. 18 on reply card



**THE DAVID WHITE COMPANY** (See cuts). This manufacturer has recently announced two new wind-free plummets, the optical type (above) and the telescopic rod type (below). The automatic optical plummet, made to fit both European and American tripods offers many advantages over the antedated plumb bob now in common use. This optical instrument is unaffected by high winds, is self-leveling and light in weight. The new plummet, enclosed in a dust and moisture tight durable alumi-

num alloy housing, is designed around a double-image sighting system. The new low-priced telescoping rod is fitted with an 8 minute level vial, giving accuracy of 1/64" in its entire length, fully automatic and made of high strength aluminum alloy tubing. Like its new brother, it is designed to fit both European and American standard tripods and has proven a great time-saver on all survey jobs.

For more facts request No. 19 on reply card



**THE WONDER BUILDING CORPORATION OF AMERICA.** Development of a new "straight-wall" prefabricated steel building, featuring inexpensive, trussless construction, and specifically designed to meet storage and warehousing needs of military users, was announced last month by the Engineering and Research Division of this organization. The new "straight-wall" Wonder Building can be erected in a few hours by as few as two workers using simple nut and bolt fasteners at an erection cost of less than 30c per square foot. Purchase costs are \$1.25 per square foot, for a building complete with ends, doors, and all necessary

ARMED FORCES MANAGEMENT

hardware. The new structure meets all building codes and will withstand wind velocities up to 125 miles per hour. Straight-wall construction, where walls rise vertically to a height of nine feet before curving to form the semi-circular roof, facilitates mechanized materials handling procedures. Complete information is available to military personnel with inexpensive storage needs.

*For more facts request No. 20 on reply card*

**BURGESS BATTERY COMPANY.** A new utility, all-purpose lantern with sealed-beam unit powered with the new super-power battery, has been developed by Burgess Battery Company. Named the Burgess Radar-Lite, this new lantern makes obsolete all previous lanterns. Designed as a multi-purpose light, it has proven valuable in military installations as standby emergency equipment in hospitals, fire departments and utility organizations. Equipped with a flasher unit, the Radar-Lite is excellent as a warning device. This low-priced lantern has a place in every vehicle and home in addition to a commercial and industrial necessity.

*For more facts request No. 21 on reply card*

**JOHN DEERE.** Can we interest you in a 20-page, two-color folder-catalog with complete information and military application of the new modern line of John Deere industrial tractors? Both crawler and tractor types are included with full equipment capable of turning one vehicle into a versatile work-horse that will enable maximum utilization throughout the year. No longer is it necessary to have specialized equipment to do the many jobs on each military installation, much of it idle as the seasons change. Specify and purchase this multi-purpose tractor from this leading manufacturer proud of his service and dealer organization at your service.

*For more facts request No. 22 on reply card*

**MYCALEX CORPORATION OF AMERICA.** A new "ceramoplastic" electrical insulation material that can withstand the effects of radiation and 1000 degree Fahrenheit temperatures without losing its properties has been devel-

oped by the Mycalex Corporation. The new material called "Supramica" ceramoplastic, consists of pulverized synthetic mica bonded with high-grade electrical glass. The new material is available in sheet and rod form or as a finished components precision-molded to desired specifications.

*For more facts request No. 23 on reply card*

**FRANZ MANUFACTURING COMPANY.** A new low cost electronic garage door operator, described as having all the features of higher priced models, but within a price reach of the average, has been announced by the Franz organization, one of the leading makers of rigid and sectional overhead type garage doors. The new model 133, as described, features a new compact power unit that takes less space than average, yet ample reserve power even when operating double-width doors. The new 133 automatically opens, closes, and locks doors, turns lights on and off, and is smooth and quiet in operation. A safety feature which causes the door to stop when striking an obstacle has been incorporated.

*For more facts request No. 24 on reply card*

**EQUIPTO** (Division of Aurora Equipment Company). To assist with storage problems, EQUIPTO has a fact-crammed, fully illustrated booklet entitled "How to Solve Your Storage Problems." This leading manufacturer of steel shelving, parts bins, drawer units and many additional items to ease storage problems. Maximum use of floor space, simplified inventory control together with better utilization of manpower are all considerations in planning for efficient operations.

*For more facts request No. 25 on reply card*

**TYREX SALES CORPORATION.** Revolutionary in concept, design and performance, a new Tubeless Tire plug now makes it possible to seal and to repair permanently, punctures up to 5/16". Removal of the wheel and tire is eliminated. The plug is made of the same quality as the tire tread, and used with TYREX Latex Sealant, it adheres to the tread for the life of the tire. Here is your opportunity to be ready for Tube-

less Tires on military vehicles with the knowledge and equipment to insure maximum tire-life.

*For more facts request No. 26 on reply card*

**LESTER B. KNIGHT & ASSOCIATES, INC.** Experienced management Counsel and specialized services to Armed Forces Management is offered by Knight engineers. If your operation will benefit by highly specialized skills in financial management, paperwork management, management controls, or plant engineering, a Knight representative will call upon your inquiry.

*For more facts request No. 27 on reply card*

**THE RICHKRAFT CO.**—Many contractors, engineers and architects have felt for some time that an improvement was desirable in membranes for use under slab and over crawl spaces. The Richkraft Company of Chicago, Illinois, has recently made definite advancement in the design of such a paper known as Richkraft 65. This paper is definitely one of the major improvements in membrane waterproofing in the last ten years. The Richkraft Company has long been connected with the construction industry and is well-known as a distributor of a wide range of reinforced waterproofed papers, black papers and reflective insulation.

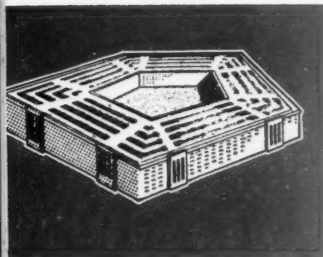
*For more facts request No. 28 on reply card*

**NATIONAL CONVEYOR & SUPPLY COMPANY**—announces production of the new Model D National Car Shaker which features the improved Quick-Attach unit and the new integrally mounted self-aligning sealed double row roller bearings. Tests indicate these specially engineered bearings will stand up better and longer than types previously used. Field replacement is considered simplified. No increase in price of this low-cost car shaker.

*For more facts request No. 29 on reply card*

**FEDERAL SIGN AND SIGNAL CORP.** The Federal Beacon Ray light flashes a bright red light through a full arc of 360 degrees, warns while moving as well as parked. Military subdivisions using it have set new safety records.

*For more facts request No. 34 on reply card*



# Washington Management

**Department of the Army.** President Eisenhower has named Wilbur M. Brucker to be Secretary of the Army, succeeding Robert T. Stevens. Mr. Brucker, a former Republican governor of Michigan, has served as General Counsel of the Defense Department since April 1954.

**Department of Defense.** An order has been issued designed to cut down on the use of limousines. Heavy sedans have now been restricted to 10 top military officials, and when these wear out, the government will lease replacements, not buy them. Those officials not included in the top 10 may retain the present large sedans until worn out at which time they will be replaced by medium sedans. Under the law, Government agencies are allowed to purchase small or medium automobiles for official use without congressional approval. Special appropriations are needed for limousines. Leases can be negotiated without congressional approval, and are less costly than direct purchases.

**Department of the Navy.** Two new jet fighters have been added to the Navy's air arm. The F3H-2N Demon, an all-weather carrier-based jet fighter in the 600 mph class, is built by the McDonnell Aircraft Corporation. The swept-wing XF8U-1, built by Chance-Vought, and designed to operate from carriers at supersonic speeds, and with a built-in fuel economy, promises to give the long endurance required in carrier operations.

**Department of the Air Force.** Disclosure was made recently that the Air Force is working on a \$2 billion program—"Project SAGE"—to bolster air defenses in the United States. SAGE—a semi-automatic ground system—is an improvement over the present manually operated

system. The Air Force is expected to contract with telephone companies to lease existing lines. Estimates indicate SAGE will require about 25,000 communications circuits compared to the 1,500 now operated for the air defense system. The entire system is not expected to be in operation for three or four years.

**Department of the Navy.** The Navy Department's exhibit, "Paperwork Management in the Navy," and presently on tour through various Naval Districts. Thousands of visitors have viewed the display which has been telling the Navy story of reduced costs, simplified paperwork, and improved management in general. Widespread interest aroused in the display, is due in part to the effectiveness of the exhibit which consists of sixteen illuminated, three-dimensional panels, measuring up to eight feet square.

**Department of Defense.** Defense officials are studying a four-point program to improve Pentagon management recommended by the Hoover Commission. The Commission has recommended elimination of three Assistant Secretaries of Defense, revamped and possibly expanded Secretariats for the Army, Navy and Air Force, and creation of a civilian agency to handle all common military supply activities.

**Department of the Navy.** The 96-hour liberty approved recently for Navy and Marine personnel located in "isolated areas," is being widely acclaimed as a morale booster and may well be credited with some personnel reenlistments.

**Department of the Army.** General I. D. White has been nominated by President Eisenhower as Commanding General of Army Forces in the Far East and the

Eighth Army. General White succeeds General Lyman L. Lemnitzer who becomes Commander-in-Chief of U.S. and U.N. Forces in the Far East.

**Department of the Air Force.** The Air Force has presently 110 permanent bases in addition to 32 others that will be so designated when the rules for awarding permanent status have been complied with. Many on the waiting list are being delayed by legal difficulties over title to the land.

**Department of the Army.** Lieutenant General Robert N. Young has assumed command of the Sixth Army, Presidio of San Francisco, California. Prior to this assignment General Young was Deputy Commanding General of the Continental Army Command at Fort Monroe, Virginia.

**Department of Defense.** Defense Secretary Wilson has ordered the services to cut down on the variety of turbo prop and turbo jet engines planned for their aircraft, and to standardize on models for inter-service use whenever possible. With a view toward cost reduction, the Secretary has ordered that the less promising engines be weeded out as early as possible. The order will not preclude industry from competing to put out the best possible engines.

**Department of the Air Force.** A multi-million dollar Air Force contract to convert a fleet of 36 C-54 transports into air rescue planes for Military Air Transport Service, has been awarded to Convair. The planes will be equipped for day or night all-weather search and rescue operations.

**Department of the Navy.** The Navy Bureau of Ordnance has published a new Ordnance booklet entitled **MANAGEMENT MANUAL FOR AMMUNITION DEPOTS**. The "best seller" is not only attractive, but loose leaf bound to enable revisions and expansion. The committee which compiled it aimed to provide ammunition depots with a clear statement of management goals, a pattern of standards for measuring management effectiveness, and a guide to improvement.

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# SERVICE SCHOOLS

## **Military Air Transport Service.**

The first class of the MATS Non-coms Academy being established at Orlando Air Force Base, Florida, is scheduled to begin October 3rd. Lt. Col. Thomas R. Aaron, USAF, School Commandant announced recently. Each academy class, consisting of 125 senior non-commissioned officers, will be of five weeks duration. Information relative to attendance will be released to the field this month.

## **United States Coast Guard Academy, New London, Conn.**

A stepped up rate of production at the officer candidate school, with hopes for more enlisted participation, has been set up by the Coast Guard for the coming fiscal year. Three classes totaling 240 men will start the course in comparison with 214 in classes during this fiscal year.

## **Command and General Staff College, Fort Leavenworth, Kansas.**

610 officers were graduated recently from the 1954-1955 regular course. Vice Chief of Staff General Williston B. Palmer delivered the graduation address. Nine Air Force, one Navy, eight Marine and 72 foreign officers were included in the total receiving diplomas.

**Bureau of Ships.** The Chief, Bureau of Ships, has requested that the annual quotas of ED officers for the comptroller course at George Washington University be increased from one to two. An increase in the quotas for the advanced management programs at Harvard University and the University of Pittsburgh from two to four was also requested.

**The Transportation School, Fort Eustis, Virginia.** A new and novel training aid is in use, training dispatchers and operators on military railroads. It consists of a series of booths, each containing a field telephone, a section of "track" with

sidings, a timetable, and train order blanks. The tracks are actually bicycle chains which pull along model trains made of wood. The booths represent stations along a simulated 50 miles of railway.

**Monterey, California.** Next month 350 line officers will enroll in the Navy's new 9½ month general line course. The second class will convene in October. Promotional examinations are waived for officers successfully completing the general line course.

**Fort Carson, Colorado.** The first class of 235 advanced engineer trainees graduated recently from the 32d Engineer Combat Battalion. The course is designed to train personnel in all phases of engineer work, including bridges, demolition and mine laying.

**Massachusetts Institute of Technology.** Beginning with the class of 1957 at MIT, a fifth specialty, nuclear engineering, has been added to the naval construction and engineering course. Of the 14 officers in the class of 1957, 4 have been assigned to this specialty.

**Army Supply Management Course, Fort Lee, Virginia.** Colonel Irvin L. Allen has been appointed as the new Director. Colonel Allen replaces Colonel Thomas B. Evans, who has been assigned to the Office of the Assistant Secretary of the Army for Logistics, Research and Development. Colonel Allen comes to Fort Lee from the Industrial College of the Armed Forces where he was a recent graduate.

**Submarine Course, New London, Conn.** The 100th class completing the Officers Basic Submarine Course has recently been graduated from the school. Since commissioning in 1916, the submarine school has trained 5,210 officers. Admiral Jerauld Wright, USN, Commander-in-Chief of the Atlantic Fleet, was the principal speaker.

**Parks Air Force Base, California.** Seventeen members of the Parks Management Training Classes, 55-21 and 22, recently were presented with certificates of completion.

**Aviation Ground Officers School, NATTC, Jacksonville, Fla.** The AGO school, established in 1952 by the Chief of Naval Operations to meet the exigencies of the Korean crisis, has graduated more than 1,000 students. At present there are 240 students in attendance which is the largest class in the school's history.

**Army War College, Carlisle Barracks, Pa.** Completing their one year course of intensive education recently at the Army War College were 184 Army officers, eight Air Force, two Navy, and four Marine officers. Assistant Secretary of the Army, the Honorable George H. Roderick, was the principal speaker at the graduation ceremonies. He was introduced by Major General C. D. Edleman, recently appointed Commandant of the Army War College.

**Institute of Aeronautical Sciences, Los Angeles, Cal.** A major symposium on "Escape From High Performance Aircraft," will be held in Los Angeles October 7, 1955, under the auspices of the Aero-Medical Engineering Association. The all-day symposium, dinner and evening roundtable will be presented at the Institute of Aeronautical Sciences building, 7660 Beverly Blvd., Los Angeles.

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## **MRS. DAVIS OUTSTANDING**

An "outstanding" efficiency rating has been presented to Mrs. Ethel G. Davis for the superior performance of her duties as a supervisory general clerk in the Production Control Section at the Corps of Engineers' Research and Development Laboratories, Fort Belvoir, Virginia.

Employed at the Laboratories since 1945, Mrs. Davis is also secretary of the ERDL Junior Management Board, which was established recently to recommend management policies to the commanding officer.

## GM Stages Outdoor Exposition

A giant outdoor exposition portraying the dramatic contributions of Diesel and aircraft power to America's industrial economy will be staged by General Motors on Chicago's lakefront August 31 through September 25, Harlow H. Curtice, president of General Motors, announced today.

Biggest show of its kind ever presented, the spectacular "General Motors Powerama" will be open to the public in a 1,000,000-square-foot area on South Lake Shore Drive, adjacent to Soldier Field.

Admission to the 26-day "world's fair of power" will be free. Entertainment on the colorfully decorated Powerama grounds will range from stage shows with singing and dancing to exhibits showing actual operation of the modern locomotive, saw mill, cotton gin, earth mover, fighter plane, and many other mechanical giants.

"Our aim in the Powerama is to unfold the seldom-heard but truly exciting story of how relative newcomers on the industrial power scene—Diesel and gas turbine engines—are giving the nation new muscles to build its roads, cut its timber, drill its wells, clear and plow its fields, propel its ships and aircraft, drive its trains, and turn the wheels of its machines," Mr. Curtice said.

"With the Powerama, General Motors will turn from its well-known consumer products such as automobiles and household appliances to a display of the latest in land, air, and marine equipment produced or powered by our Diesel, aircraft, and heavy equipment divisions. The tremendous strides being made in these fields will be the theme of the Powerama.

"Our show also will celebrate the production this year of General Motors' 100 Millionth Diesel Horsepower. This achievement is one measure of the importance which this form of power has assumed in our industrial economy.

Also featured at the Powerama will be GM's XP-21 Firebird, first gas turbine automobile built and tested in the United States, plus the seven experimental "dream cars" and the "dream truck" which

## Index to Advertisers

### Blackhawk Hotels.....Page 15

Noted for their excellent service and matchless cuisine, the Mississippi, Davenport and Blackhawk hotels in Davenport, Iowa, the Saint Paul and Lowry in St. Paul, Minnesota, and Hotel Jefferson in Peoria, Illinois, are popular with services personnel traveling thru the Midwest.

### Buckingham Transportation, Inc.....Fourth Cover

This safety-conscious motor carrier has hung up some enviable safety records, collected a lot of awards, and keeps its fleet rolling over the highways of South Dakota, Nebraska, Wyoming, Minnesota, Montana and Colorado meeting commitments of an ever-increasing business.

### Davenport Besler Corporation.....Page 1

This Iowa firm serving the Defense Department specializes in custom building locomotives to fit specific needs.

### Federal Sign and Signal Corporation.....Page 17

Is the maker of the Beacon Ray light. Military sub-divisions using it have set new safety records.

### Lester B. Knight and Associates, Inc.....Page 13

Experienced management counsel and specialized services to the Armed Forces Management groups are available from this firm with an outstanding record of achievement in its field.

### Lockheed Aircraft Corporation.....Second Cover

One of the nation's leading aircraft firms announces production started on the new giant of the industrial South, the turbo-prop USAF C-130 Hercules transport.

### National Conveyor & Supply Company.....Page 35

The National Car Shaker eliminates 80% of the manual labor, saves time, and keeps conveying equipment going at full capacity.

### Hotel Pennsylvania.....Page 30

On Capitol Hill in Washington, D. C., just one block from Union Station is this first class hotel with reasonable rates, guest auto parking.

### Photographic Motion Analysis.....Third Cover

A comprehensive compilation of the latest developments designed for engineering information and reference is presented by Armed Forces Management, the only comprehensive volume of its kind available for management men who want to keep abreast of the latest techniques.

### Richcraft Company.....Page 29

Richcraft 65, pre-treated with special fungicide is easy to lay and inspect. A cost-saving membrane for under concrete slab and over crawl space where slab is not poured on the ground. Comes in 3, 4, 5, 6, 7 and 8 ft. widths.

were among the hits of this year's Motorama at New York, Miami, Los Angeles, San Francisco, and Boston.

Here are a few of the exhibits planned for the Powerama:

The world's largest dump truck.

An M-48 tank with the control apparatus outside where spectators can watch an operator control the steel monster.

A full-scale model of a vertical rising aircraft, showing how the "Pogo" plane takes off "straight up."

An F-89 "Scorpion" fighter plane.

An oil drilling rig in actual operation.

An operating saw mill, cutting up giant timber.

An operating cotton gin.

A high-speed Diesel locomotive, mounted so that it will "run" without moving. Visitors will be able to operate it.

A full-scale exhibit showing all the steps in building an actual road.

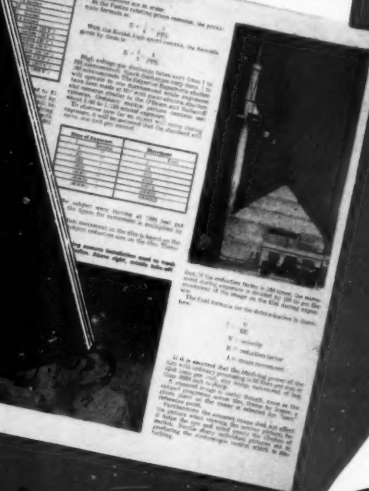
A GM Diesel engine used in the world's fastest submarine.

Scores of other exhibits including the latest developments in Diesel-powered transportation, plowing demonstrations, earth-moving demonstrations, and a variety of engines and cutaways.

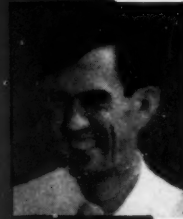
# Photographic Motion Analysis

By John H. Waddell  
and  
Jerome M. Waddell

Industrial Laboratories Publishing Company



## ABOUT THE AUTHOR



John H. Waddell

A photographic career that dates back to the early twenties has given John H. Waddell a background that justifies characterization as a dean of Scientific Photography. His experiences in microcopying, x-ray, color photography, photographic instrumentation,

high-speed motion picture photography, coupled with collaboration in developing a popular method of processing sound motion film, are incorporated in his work *Photographic Motion Analysis*.

He was the first person to make underwater high-speed motion pictures in daylight at 4000 frames per second; he made the first full color pictures, in daylight, of a missile take-off. As a technical representative and consultant to the Army Air Forces, the author took the first high-speed color pictures of an atomic bomb explosion and, in 1952, he took the first high-speed color movies of the human heart in action—at 1000 pictures per second, motion was "frozen" to show every phase of each heart beat.

John H. Waddell's knowledge and experience finds him serving as consultant to the Army Air Forces, Navy, Ordnance, Bureau of Standards, Institute of Medical Research in Los Angeles, and other technical organizations.

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Accepted as controlled circulation publication at Mount Morris, Illinois